# REPORT RESUMES

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PROCEEDINGS OF THE CONFERENCE ON PROGRAMMED LEARNING AND RESEARCH IN ADULT EDUCATION (NAIROBI, JUNE 12-19, 1966).
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DISCUSSIONS AT THE SECOND CONFERENCE OF THE ADULT EDUCATION ASSOCIATION OF EAST AND CENTRAL AFRICA CONCENTRATED ON PROGRAMED INSTRUCTION AND RESEARCH. THE BASIC TECHNIQUES OF PROGRAMING WERE OUTLINED AND CURRENT TRENDS OF THOUGHT IN THE DEVELOPMENT AND USE OF PROGRAMED INSTRUCTION WERE DISCUSSED. THE CONFEREES EXAMINED THE FIELDS WHERE RESEARCH WOULD BE APPROPRIATE, THE MOST VALUABLE METHODS TO BE USED, AND THE WAYS IN WHICH MORE RESEARCH AND EVALUATION COULD BE ACHIEVED IN DEVELOPING NATIONS. IT WAS RESOLVED THAT--(1) PROGRAMED INSTRUCTION HAD GREAT POTENTIAL VALUE IN ADULT EDUCATION IN DEVELOPING COUNTRIES, WHERE THERE IS A CHRONIC TEACHER SHORTAGE AND MANY ADULTS HAVE TO LEARN ON THEIR OWN AND THAT (2) IMMEDIATE STEPS SHOULD BE TAKEN TO START RESEARCH PROJECTS, USING EXISTING RESEARCH INSTITUTES AND SOLICITING EXTERNAL ASSISTANCE. (THIS CONFERENCE WAS HELD AT NAIROBI, JUNE 12-19, 1966) (RT)

# PROGRAMMED LEARNING AND RESEARCH IN ADULT EDUCATION

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Conference Proceedings
1966

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Adult Education Association
Of East and Central Africa

# Programmed Learning and Research In Adult Education

Proceedings of a conference organised by
The Adult Education Association
Of East and Central Africa

University College, Nairobi
12th to 19th June, 1966

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# List of Speakers

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University College, Nairobi.

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# Introduction

**The proceedings which follow are those of the Second Meeting of the Adult Education Association of East and Central Africa. The first conference of the Association was held at Lusaka, Zambia in January, 1965 on the "Use of Mass Media in the Education of Adults."**

**Two separate themes were chosen for this latest Workshop/Conference: Programmed Learning and Research.**

**The objectives as regards *Programmed Learning* were to acquaint delegates with the basic techniques of programming, to inform them of current trends of thought in the development and use of programming techniques, and to assess the value of using programming methods in the various adult educational fields in developing countries.**

**On *Research,* there has for long been a general feeling amongst adult educators that a greater emphasis should be placed on formal and properly organised research work in Adult Education, especially in developing countries. This is basic to proper planning, development and execution of all adult educational programmes and projects. The Conference set itself the task of examining the fields where research would be appropriate; the most valuable methods which could be utilised; and the ways in which more research and evaluation could be achieved within the framework of a developing country.**

**Participants came from Uganda, Tanzania, Bechuanaland, Swaziland, Malawi, Zambia, Sudan, Ethiopia and Kenya.**

**The Association interprets Adult Education in its widest sense so that representation and emphasis in discussion was confined not only to formal evening class and University Extension work but to such wide activities as literacy, agricultural extension work, community development, health education, and In-Service training.**

Whilst the details of the Conference recommendations are contained in the main body of this report, it is useful to note here that programmed learning was seen to have distinct possibilities as an educational method, especially in circumstances where there is a shortage of teachers and instructors and where it is necessary for adult students to study on their own.

On Research, it was agreed that this must be given more objective prominence for the proper development of Adult Education, especially in the recording and assessment of past programmes and methods in all fields from which could be drawn valuable lessons for the future.

On behalf of the Association, I would like to record our warm appreciation to the following sponsors whose financial support made the conference possible: the Unesco; the Thomson Foundation; the East African Institute of Social and Cultural Affairs; the Friedrich Ebert Foundation; the Shell International Petroleum Co.

R. C. PROSSER.
Chairman 1965 - 1966.

# Preliminary Proceedings

## Address of Welcome

**Dr. Arthur Porter**

Mr. Chief Education Officer, Mr. Chairman, Ladies and Gentlemen,

It is indeed a great honour for our University College to be host to this 3rd Annual Conference of the Adult Education Association of East and Central Africa, and to have Mr. Prosser, a member of our staff, as this international association's current Chairman.

We are also exceedingly gratified that we have been chosen to house the very first international conference on Adult Education Programme to be developed within the economic, social, our University College places a great emphasis on the development and organization of Adult Education in this country.

We are well aware of the responsibilities of a University College in a developing country such as this. We are also well aware of the need and the nature of a University Adult Education Programme to be developed within the economic, social, and political threads which compose the national life of our adult population and we are happy to provide service to as many of our citizens as we can in this important educational field.

It is true to say that Africa today is going through a major social revolution. The old Africa, characterised by tribal forms, simple mechanization and a subsistence economy, is being superceded by a new Africa based increasingly on nationalism, literacy and a money economy.

To be able to make the valid judgements and take the right decisions on matters relating to development and welfare — and these are not necessarily complimentary, sometimes they are — it is obligatory on all adult members to have an adequate knowledge of the society in which they live and of the pressures and techniques which are changing and moulding that society.

It is one of the major functions of our University to help supply this comprehensive vision. Indeed, our University owes its very life to the community, and service of that community must be our primary object. If the job of the University, as has been indicated, is to enable people to understand the nature and problems of their society, then it follows that the work within our walls is only part, and a very small part, of our obligations. In countries like Britain, about one in a thousand go up to university; here in Africa, it is one in several thousands. If, therefore, there should be an enlightened public opinion, able to diagnose our time, then the university colleges must, as a primary duty, extend their work outside their walls, as we here at University College, Nairobi, are doing, through our work in Adult Education.

We are all engaged in this exciting process of national reconstruction which we refer to as nation building. But nation building is not something which can come as a gift, or dictated from above by the passing of a few laws, or, as someone recently put it, by having a national anthem and a flag. Nation building, if it is to be a reality, must be based on a broad foundation of informed conviction among ordinary men and women who know what they want and the way to obtain it. Nor can such a foundation be laid merely on oratory and propaganda. There is, of course, a place for both. But we need light as well as heat. The best citizen — and, for that matter, the best politician or negotiator — is the man who knows his opponent's case better than his opponent himself and is not put off by objections, because he has prepared himself well in advance for such objections. The condition of such knowledge, and of the initiative and resourcefulness which only knowledge can give, is undoubtedly EDUCATION. And this education, we know, must not be confined to a minority, or the danger will be to create ivory towers and produce intellectual snobs. This type of education must be widely diffused. Indeed, without the education of the many as opposed to the few, the foundations of democracy itself are insecure. This is recognised in the inscription over the entrance to the New York Public Library which reads: "On the diffusion of Education among the people rests the preservation of our free institutions."

Africa today, to use the words of Edmund Burke, is on a conspicuous stage and the world watches our demeanour. It is therefore our duty to see that our friends from outside, who are willing to co-operate with us in the development of our resources and in the study of our history and culture, see that, in this co-operative endeavour, we present a correct picture of our Africa, and knowledge about it comparable in objectivity to the knowledge we have of other continents.

Today is a fitting occasion to announce publicly a complete integration of these two Departments into one Institute of Adult Studies. And it is through this new institute that we of the University College expect to play our major role in the wide field of Adult Education.

For the past ten years the College has been organising an Adult Education Programme throughout the country. It has helped in initiating new plans and programmes for the development of adult education here. It is also fitting to mention the major role which we have played in the blue-printing of Kenya's new National Board of Adult Education. Such a Board is an interesting experiment having as it does, I believe, a majority of non-government members and is the first of its kind in Africa. We look forward to a long period of renewed co-operation with all the many organizations, institutions and bodies, both official and unofficial, which comprise the Board and which altogether, under its organising agency will spear-head the national Adult Educational effort.

Besides providing our own university course in most of the major towns and centres of Kenya, the College is presently interested in three new major developments: Correspondence Education, Research in the field of Adult Education, and Training of Adult Education Staff. I am pleased to hear that two of these topics are going to be discussed by your conference during the coming week. Programmed Learning, I am told, has grown out of Correspondence Education and the writing of Correspondence Courses is in fact an exercise of programming. There can be no doubt that research is one of the important and proper functions of a University. There is a great deal of research work that needs to be done in Africa, and in the field of Adult Education very little has so far been undertaken. I hope that the conference will be able to indicate ways in which we can remedy this situation, for without doubt, there can be no proper planning without prior adequate research.

I wish you well in your important work in this coming week, and sincerely hope that you enjoy your stay in our College. And so, finally, on behalf of all of us at the University College, I welcome you and wish your conference every success.

# Opening Address

**Mr. K. Mwendwa, Chief Education Officer,**
**for the Hon. J. Nyagah, Minister for Education**

On this occasion of the third Annual Conference of the Adult Education Association of East and Central Africa, I am happy to be present as representing the Government of Kenya.

The Kenya Government is indeed happy that Nairobi should have been chosen as the venue for this year's Conference and Workshop. On its behalf I welcome our visitors from other parts of Africa, and those who have come from even further afield — from India and Europe. Those who are seeing Kenya for the first time will find much to interest them — and I hope that in spite of the crowded working time-table of the Conference, they will find time also to see something of this city and our countryside — so rich in human efforts and in natural endowments, and to meet some of the people.

The whole field of education poses great problems for the new African nations and within that field, the education of adults is of vital importance. Heavy responsibilities rest on the shoulders of all our adult citizens. The whole process of nation building is theirs and the speed with which this is achieved must be a reflection of the capacity of their minds and will. Full participation of our adults in nation building and in determining the general directions in which our nation should move, must presuppose an informed, skilled and thoughtful adult community — both men and women.

Again, our countries are poor in material wealth if not in spirit and if we are to develop our standard of living as quickly as we would wish, then the training and efficiency of our adults is of paramount importance. In all our national planning, the development of our rich endowment of human resources must take pride of place. In Kenya about 80 per cent of our adult population is still illiterate; we do not have enough primary and secondary schools; so that for some time to come we can expect the education of our adults to provide a major and basic challenge to us all.

Here in Africa, we have to build up our adult educational traditions afresh. We have to build on our traditional customs, and our traditional structure of society, adopting where necessary and introducing new forms where the old no longer has any use, or where nothing exists.

Adult education embraces many activities. Formal adult education prepares and helps our adults to pass examinations and remedy some of the opportunities which they missed during childhood. Fundamental adult education is concerned with the task of teaching our adults the new basic methods and techniques of modern way of life — literacy, better agricultural methods, better housekeeping, diet, child care, and better habits for healthy living. Liberal adult education caters for leadership and a healthy citizenship.

Adult education deals with many different levels, all of us can participate as both teachers and students; even those who have been to University need to refresh themselves; learn about new developments in their own subjects and perhaps learn new subjects, for which they had no time before.

Since the field is so wide, there is a great range of governmental ministries and non-government bodies engaged in provision. I am glad to see so many different representatives here this evening, all aware of their educational responsibilities.

My own Ministry, which recently acquired the overall responsibility for adult education, has already begun to plan new developments in this field which I am sure will lead to a dynamic expansion of all types of activities.

The creation of a Board of Adult Education is timely, and will have the express task of co-ordinating all our efforts and planning within the framework of national development.

The structure of nationwide district and provincial adult education committees will ensure local participation and endeavour, and integrate projects with local plans. The appointment of an officer within my Ministry with responsibility for these developments will ensure the full participation of this Ministry, and we look forward to a long period of fruitful co-operation with other government ministries — agriculture, social services, health, co-operatives, labour — and other bodies charged with adult education. The establishment of the Unesco African Sub-Regional Centre for Literacy in Nairobi is a welcome event and should provide a great stimulus to our national activities in this field.

In studying the excellent programme of your week's work, I see with interest that you will be devoting your time to two very practical aspects of adult education — programmed learning and research. Both have a very real and immediate relevance to the needs of adult education in present-day Africa.

At whatever level, education must stand on a firm foundation of exact knowledge thoroughly mastered. In the final resort, it is the student, not the teacher or instructor, whose contribution to the learning process is decisive. Programmed learning takes its cue from this truism, and is particularly relevant to the adult field where responsibility is placed on the student and where individuals studying alone often need to move at their own pace. Step by step the student is guided forward, from the basic elements of his subject towards its more advanced and complex stages. At every point there is a built-in check on his real grasp of the material so far preserved. At the same time, the method imposes a valuable discipline on the teacher, whether he is the original author of the course or the teacher using the course in the classroom. He is forced to view the object as a continuous, related whole and at the same time to break it down into its smaller component units of knowledge; and he has a continuous built-in check on the progress of his students.

Years, if not centuries of trial and error lie behind the development of this approach in the older societies. Here in Africa we do not need to repeat the same lengthy process. Instead we can incorporate the latest learning techniques at the onset — and here there are great rewards to be won, provided we are alert and open-minded to observe and make use of whatever new concepts and methods have proved their value in practice. Programmed learning, for those who fully understand its potentialities — and, let us be clear, its limitations — can be an invaluable tool in societies like ours, where 'the harvest truly is great, but the labourers are few.'

It is this same gap between needs and demand, on the one hand, and resources on the other which gives urgency to the second topic on your programme — the place of research in adult education. Adult education rightly has to fight for a place in our priorities — and everywhere in Africa both funds and trained staff are severely limited. Hence the absolute need for factual data in preparing and evaluating a planned approach to the provision of adult education. And yet, what do we find? Despite years of devoted effort in this field, there has been little or no systematic exploration of the real educational needs of our men and women; or the relation between social and economic change and the education which would best prepare our adults to understand and meet it. Without such exploration, in the form of sustained research, both governments and adult educators must be largely operating in the dark, on the basis of impressions and hunches rather than precise knowledge. And this way lies the risk of a grave misdirection of energies and resources. Your Workshop can make a real contribution towards creating a climate of welcome and mood of urgency in this seriously neglected field.

The national representation of this Workshop is especially gratifying by virtue of its Pan-African character. Much weight is rightly being given to the promotion of African solidarity at the level of politics and governments. But the efforts of political leaders alone is not enough. What is also needed is a continuous exchange of ideas, opinions and experiences at unofficial levels, and in forums like this Workshop. Here, active workers and administrators in the field of adult education, from countries covering a vast sector — East and Central Africa, can pool their professional expertise and establish or renew those personal links which are the life-blood of any pioneering movement. Over and above the formal sessions, with their lectures, demonstrations and discussions, it is in informal contracts and conversations that a conference of this kind achieves its most lasting results.

It is fitting that we should acknowledge and pay tribute to the heartening financial support which has made this Workshop possible. Thanks are due to Unesco; to the Thomson Foundation; to the East African Institute of Social and Cultural Affairs; and to Shell International Petroleum Co. — all of whom have shown a warm interest over and above the bounds of formal generosity. Our thanks are due not least to our distinguished guest speakers from overseas, whose presence here amid so many competing commitments is the best possible witness to the importance of your work.

On behalf of the Government of Kenya, it gives me great pleasure to open this Conference, to welcome you in Nairobi, and to wish you well in the busy week ahead of you.

# Unesco Greetings

### A. Buitron, Unesco Chief Advisor, Sub-Regional Literacy Centre for East Africa

I am pleased to bring you greetings and best wishes from the Director General of Unesco, Mr. Réné Maheu, for the success of this Workshop on Adult Education.

The interest of Unesco in adult education goes back to the first years of its existence. For many years Unesco has been promoting the development of adult education throughout the world, and helping its member states technically and financially to improve their services in this important field. Being an international organisation, Unesco has always been greatly interested in the exchange and dissemination of ideas, methods, techniques that have proved successful in one part of the world, that could be applied in another. In this role Unesco has convened many important meetings whose conclusions and recommendations deserve to be known better by all the people working in this field because of their importance in the evolution of ideas regarding education in general and adult education and adult literacy in particular.

I would like to mention only three of the most important meetings in the field of adult education. In June, 1949 Unesco convened an International Conference on Adult Education at Elsinore, Denmark. A little over a decade later, in conformity with a decision taken by the General Conference at its tenth session, Unesco convened the Second World Conference on Adult Education, which was held at Montreal, Canada in August, 1960. Last year, following the gracious invitation of His Imperial

Majesty, the Shahinshah of Iran, and in accordance with a resolution adopted by the General Conference at its thirteenth session Unesco convened the World Congress of Ministers of Education on the Eradication of Illiteracy, which was held at Teheran last September.

This brings me to one aspect of adult education which is more closely related to my work in Kenya. I do not need to tell you of the importance of adult literacy since it is the first and basic step in the endless process of adult education. As you must know, Unesco has been looking for more practical ways to fight illiteracy; it is the job of Unesco to find more effective and more economical ways for the eradication of illiteracy; it is also the job of Unesco to promote and get support for its literacy campaign.

Through its efforts the United Nations General Assembly, at its Eighteenth Regular Session, unanimously adopted a resolution inviting member states in whose territories illiteracy is still widespread, to accord appropriate priority to the eradication of illiteracy within their overall development plans.

The resolution commends Unesco on its activities in connection with the eradication of illiteracy and expresses the hope that it will pursue its work in this field further, including the planning, supervision, and financing of pilot projects.

Since then, many national, regional, and international organizations have expressed their support for a world campaign for Universal Literacy.

The International Committee of Experts on Literacy drew attention to the fact that a selective approach may be more rational and more effective, and that it is reasonable to launch the literacy campaign in more organized sections of the economy, in particular, in sections of the population where people are employed and need literacy for their regular work.

Following the selective strategy the Director General of Unesco proposed the operation of an experimental programme, which will include:

1. A number of intensive experimental projects in eight selected Member States.

2. Technical assistance to all Member States, on request, for the planning and execution of national literacy programmes and projects.

3. A network of Regional and Sub-regional Centres, institutions and activities designed to support experimental projects and national programmes in Member States, also calling for collaboration with many international and regional organizations and correlation with programmes of assistance provided under bilateral agreements.

4. International planning and supporting services, established by Unesco under its Regular Budget, calling for concerted action by several different Departments and Services of the Secretariat, and engaging the collaboration of many international organizations, both inter-governmental and non-governmental.

It is within this experimental programme and as part of it that the Sub-Regional Literacy Centre for East Africa, with headquarters in Nairobi, began its operations last October, 1965.

The purpose of the Centre is to serve Kenya and the neighbouring Unesco Member States in the East African Region:

a) by assisting in planning literacy programmes as part of development:

b) by promoting the co-operation and co-ordination of action of governmental and non-governmental agencies;

c) by training of literacy teachers and adult education workers;

d) in the production and use of teaching and training material in co-operation with the East African Literature Bureau and in the use of bibliobuses (bookmobiles) made available under the joint Unesco-Swedish Programme.

In addition, the Centre will co-operate with the University College of Kenya in the research and evaluation aspects of the project as a long-term aim.

I thought that I should tell you about this particular aspect of adult education because, the Government of Kenya is deeply concerned with this problem, and is right now planning a national adult literacy programme, and because I hope that this Workshop, during its discussions on programmed learning and research in adult education, will include their application to adult literacy so that all of us who are working in this field may profit from your knowledge and experience.

Finally, I would like to compliment the Adult Education Association of East and Central Africa, and the Extra-Mural

**Department of the University College, for selecting for its Workshop a topic of particular importance for the developing countries.**

**The importance of research on new methods in education and more efficient techniques in communication, can never be overemphasized.**

**Programmed learning could help solve the problem of an ever-increasing amount of information to communicate, an ever-increasing number of people to communicate this information to, an ever increasing proportion of people qualified to communicate it.**

**Thank you.**

# Part 1: Programmed Learning

## The Basis of Programming

### P. Thornhill

Members of the Conference, thank you very much for your welcome. I am sure that on behalf of my colleagues I can say how very glad we are to be invited to come here to participate in this workshop. I would like to say on behalf of Mr. Goodman who rang me the other day, how very sorry and disappointed he was when his doctor told him he was not to come. We have, however, been very lucky to have Mr. Unwin to come to take his place.

I think we can regard this workshop, I like the word workshop better than talk-shop, as a bringing together of two skills—yours, in the sphere of adult education in East Africa, ours, I hope, in the sphere of programmed learning. I hope this week it will be a matter of a two-way communication and that at the end of it we shall all have benefited, you and us, and have a clear idea of the possibilities of programmed learning in adult education in East and Central Africa. We think the best thing is to kick off by giving you a rough idea of what programmed learning is, on the assumption that you do not already know of course, and then we shall have a common basis for useful discussion later on. Before we take the plunge let us remind ourselves that programmed learning is but one of a number of inter-related developments in educational techniques that have been pouring from us in the last few years, language laboratories, tape recordings, closed circuit television and so on, and they are inter-related.

We have to study the role of programmed learning in relation not only to the old educational techniques, but also to these. But we shall not have much time to do that. That is something for you to keep in mind. Another thing we shall have to ask ourselves is whether programmed learning is the best way of doing the particular job. I know when programmed learning got going in England a few years ago, we were rather like children with a new toy, or a knife we had just been given as a present: we were longing to carve our names with it on everything that came in sight. It was a case of saying, "How could we apply programmed learning to that?" every time a subject came up. Now, I think, we are getting to the stage of saying, "Is programmed learning the best way of doing this particular job?" And sometimes the answer is "No". However, one thing is certain about programmed learning: it is a form of self instruction and consequently it has to be self-explanatory. I am not going to give any more explanations about it: I am going to give out now a short programme for you to work on. These programmes have been made available by Mr. Monk.

Remember that programmed learning is a way of teaching. It is not to test you and it is not a way to try to catch you out, and if you come across an answer that seems ridiculously easy, you must not think there is some catch in this; there is not, if it looks easy, it is easy. All right go ahead.

(Interval while members work on the programme)

Some have finished, some have not, and that tells us one thing about programmed learning. Straight away it tells us that people work at different speeds. The student works at his own speed and not at the speed of the whole class. No doubt, quite a number of things have occurred to you and I hope they will come out in discussion later on.

# Fundamentals of Programmed Learning

D. Unwin

Mr. Chairman, Ladies and Gentlemen, I shall start off by saying how pleased I was to be able to come here to Kenya, even though at short notice. My brief stay here is to fill in the background for you on the topic of programmed learning and of necessity it will be fairly brief and sketchy. We hope during the course of the week that ample opportunity will arise for discussion between the three of us and any of you of course.

I would like to get it clear at the outset that there is no difference whatever between programmed learning and programmed instruction. The two terms are synonymous, and I shall frequently use both. Another thing which is more important is that a number of you will have come here expecting to learn a great deal about teaching machines. This is something which is undesirable, in that the teaching machine is not a very important part of programmed instruction. Most teaching machines are merely devices for presenting a programme. The programme is important; the machine is by no means necessary and obviously it adds considerably to the cost of introducing programmed methods. The machine is merely a vehicle for presentation.

Let me give you some historical background to the programme learning boom, as one might call it. It dates back to the 1920's when Sydney Pressey of Ohio University was becoming increasingly burdened with marking of the objective test which is, I believe, a feature of American University instruction, and he thought of a method of devising a machine which would administer the test and produce a score. In fact this was a small drum-like thing with windows. A question appeared in the window and the student was offered alternative answers to the question and pressed button A, B or C corresponding to the answer of his choice. When he pressed the right button the machine turned to the next question and incidentally of course recorded whether he had been right or wrong and added it to a cumulative score. Well, Pressey experimented with this machine for a bit so that the machine would not move on until the correct button had been pressed; so that if the correct answer was C, and you pressed A nothing happened; if you pressed B nothing would happen; as soon as you pressed C the machine would move on to the next question, and count up the wrong attempts as well as the correct answers. He saw then, that in using the machine in this manner it appeared to teach. He advanced various psychological reasons for this and indeed at this time, in the late 1920's, suggested that this kind of instruction would become very useful and he thought of an impending revolution in education along the lines of his work. However, in retrospect it appears that times were not right for this. As you know at this time the depression was affecting the world and any machine or what-have-you that might conceivably have affected the rights of the teachers was unlikely to gain acceptance and indeed we have a tremendous gap with very little work being done on methods of instruction, and writing of programmed learning until the mid 1950's.

I expect that a number of you are familiar with the work of Prof. Skinner. During the war, I understand Prof. Skinner was posted to a flour mill where there was nothing to do but look at pigeons. As it was something to pass the time away, he and his colleagues attempted to train pigeons to do various things and eventually they set up on a method of animal training, and this is used very widely for animal training these days. It enabled them, for example, to train pigeons to play a rudimentary form of ping-pong and do other quite complicated exercises. After that Skinner returned to his laboratory and started mulling things over, and looking at the American educational system. He gradually came to wonder whether some of the techniques that he had developed for animal training could be used to teach human animals, and from this time two papers published by Skinner in 1954 and 1958 dates programmed learning.

Skinner's principles were applied to human learning, and were largely those of shaping, i.e. one gradually shapes behaviour by very small steps towards one's final aim. At no time do you ask the student to do much more than he can already do. You make the increments of learning very, very small, and gradually, imperceptibly almost I might say, build up the required behaviour. And Skinner was very keen on talking only in behavioural terms. He was most anxious that the objective of any course of instruction should be clearly stated, and that instructors should know what they are trying to do, and how to realise when they have done it.

One would suppose that the research that has gone on into learning theory would be a good deal of use in the construction of programmes, but this hasn't in fact been the case. Probably the only man well-known for his study in learning theory, who has paid much attention to programmed learning is Dannier, and his contribution has been limited to identification of what he refers to as task hierarchy. This is, that for anyone to teach a sub topic, a certain minimal area, you must be sure that the student is in possession of all the various subordinate skills that are necessary to carry out the given task, e.g. if the student is to adjust a fan belt on a motor car then he must obviously know what a spanner looks like, he must know how to recognise the right spanner, he must know where the appropriate nuts are, and for adjustments, he must know where to look in the manual, to see what amount of play there will be on the fan-belt, and so on. Each of these skills, of course, demand a further number of subordinate skills. So, Dannier, who has written programmes for mathematics, started off with the skill needed to be able to solve mathematical equations and then worked backwards, through various branches, finding out — writing out, of course — all the subordinate skills that were necessary in order for one to be able to solve quadratic equations. Then you produce a programme making sure at every stage, that you are not asking a student to do something with which he is not yet familiar. This sounds self-evident, but in fact, when you are dealing with fairly complicated motor work, or intellectual tasks, it is easy to assume knowledge that they don't possess. So, this sort of task analysis of Dannier's is well-worth carrying out, if you are a programmer, and dealing with a population which is mixed and which you are not absolutely familiar with.

How does programmed learning, in book form, differ from a conventional text-book? If you can learn from a programme, why can't you learn from a textbook? Well, I think, most of us would probably agree that it is a fairly able student who can take a text book away, and digest the contents of it: textbooks are written, very much to be read in conjunction with a normal full time course of education. With programming, we try to break things down, and we try to make things simple. We try to give a continual check on performance. There is really no comparison between a good textbook and a good programme. They set out to do different things, and by and large, students can work through a programme by themselves: they cannot work through a text book.

Naturally, the emphasis this week will be on programmes printed or duplicated on sheets of paper, but this is not the be all and end all. Programmed learning techniques can be applied to any method of teaching. We are doing in Great Britain now a good deal of programmed learning by tape recording. We are seeing the application of programmed learning to educational television, with 16 m.m. and 8 m.m. loop film, and so on. So our emphasis will be on paper, because it is paper programmes that can easily be produced by practicing teachers, it is worth bearing in mind the techniques we will be describing to you this week can be used with any medium of instruction.

Following this preamble, I'll now attempt to give you a definition of programme instruction, but this will be a personal definition, and it is not really exclusive. What I shall now set out to you, is a number of features which are common to most of the programme learning material which has appeared so far. First of all, most programmes are intended for individual working, one programme for one student, and they call for active responses from the student, i.e. throughout the course there will be questions asked, or tasks of one sort or another set, and it will be intended that the student is given immediate knowledge of the results of what he has done. He is asked a question and then, in a few seconds after he has answered it, he will see the correct answer. Of course, we cannot cater for every possible answer, and there might be right answers that the programmer never thought of, but this is the sort of problem that will come out during the week. So, aptitude, individual work, with knowledge of results is one generally accepted feature. Secondly, the programme will have been written or constructed with testing and rewriting as one goes. This means you produce a first draft out of your head and you will try it out on one or more students. This obviously is most important — this process of testing enables you to get information on what you have written, how good it is, whether it is workable. And, of course, you then rewrite. It may be that if you didn't get off to a very good start — the whole lot may need throwing away — then start again. In general, this is not the case. Certain items, usually these are called frames, will need amplifying, or drastic revision and very often you will find areas of a programme which are much too condensed, and whole new blocks of material will have to be inserted.

Once again, when you have done this, you can, of course try your programme out again on one or more students. Gradually your improving and sharpening of your programme will get it to the stage where one can almost guarantee that it will be fairly successful, because it has, as we say, been validated. So this feed back from the student to the writer — feed back and revision — is another feature of programme writing.

A third point, is the emphasis on behavioural criteria, for objectives and assessment. Either you can adjust the carburettor so that the car works or you can't. We do not say that programming will teach someone to know about carburettors, we say that you must be able to adjust a given model to do so and so, or you must be able to solve equation of the type so and so; or you must be able to apply Boyle's law to problems to the type so and so. Not — *know* Boyle's law; not — *understand* Boyle's law. There may be plenty of graduate scientists walking around who do not understand everything there is to know about Boyle's law. So, we try to keep away from words like 'to know' 'to understand' — we prefer to be able to 'do' something, to 'solve' something, to 'calculate' something. I can see some lowering brows here, 'understanding' is very much beloved by the educational world. Now this is probably something that will startle some people. We assume that the student is always right — carrying on the best principles of commerce — and if our programme doesn't teach, we don't say (although we may think it), that this is a blockheaded student. If the programme doesn't work, it is the programme that is wrong. We want to find out why — whether it has been given to the wrong student, or if it is the wrong programme. Either the one thing or the other must be changed.

The last item here which I am going to put into my ersatz definition, is that the programme must be ingenious. We must select the best method of presentation. This is one of the aptitudes of a good programmer. He has got to know his subject well. He has got to have taught it, I think, so that he can, at every stage of the programme, try and pick an appropriate method of getting the point over. I would just bracket all these together and say, in a programme I would look for ingenuity of one sort or another. Communication is the whole basis of the whole thing — all the time we are looking for the best way of communicating.

Let me emphasize this definition by making an analogy here. Where one is considering making a new type of production of a car, the first thing one would do would be to carry out a certain amount of market research, to find out what the public wants, what the potentiality is, and this of course corresponds to programming, to sitting down and thinking about 'Who am I trying to teach?' 'What have I got to teach?' and 'I must be very precise about it'. A motor manufacturer goes on trying his design out and he doesn't try it out under ideal conditions: he doesn't give it to the finest, skilled motorist he can find; he tries to give it to someone who either deliberately or unconsciously will give it all the rough treatment that the average motorist will. Similarly, when you try your programme out, don't look around for the bright boy sitting around on the front row — find out the one who is the slowest person that you hope these programmes will be used on. They will tell you whether your programme is any good or not. Finally, when it has been adapted, then you can start running it off. Get it through these various preliminary stages, so that before you start assaulting vast quantities of students with your programme, you can be pretty sure it is going to work.

Obviously, from all the evidence that we have here, I imagine you will be interested in what are the requirements for someone who is to write a programme in East and Central Africa. I don't think the requirements vary very much throughout the world. Given that first of all the person knows his subject matter — fundamental things — it is possible for non-teachers to write good programmes, because the process of trial and the validating of the programme will sort out some of the difficulties, but, nonetheless, if you have teaching experience, with the sort of students for whom the programme is intended, you will be able to select the best sort of approach, and you will, in general, short-circuit a lot of writing. You are likely to end up with a more polished programme. So, know the subject, and secondly have suitable teaching experience.

Thirdly, a good programmer is a humble man. He doesn't assume that when he writes something down it is crystal clear. This is a failure that authors of many textbooks have. They make the assumption that when they put something down on paper, there it is, and that any fool who looks at it can understand it. In fact, it is difficult to communicate on paper, we know. The written word is not easy for many people to comprehend unless enormous trouble is taken to get it down in a suitable form. So, a good programmer is a humble man who is prepared to accept that the student must be the arbiter of whether what has been written works or not. Again, he must be patient. It is very nice perhaps when you have dashed off in a week or two, a few hundred frames or so, and can then sit back and think, that's that. You must test them out, and may find that three quarters of the frames are completely unsatisfactory, and that a lot of revision is necessary. Well, you must have the patience to give just as much work to the re-writing as you did to the original — probably, much more thought. So, if an individual doesn't possess any attributes of patience, then I think he would probably make rather a poor programmer.

And lastly, if you are going to turn out really good programmes, you have got to have some ability for writing. This is glossed over a bit in books on programming, on the assumption that any one can write a programme if they pay attention to the sort of things I have been describing, and if their temperament is right. Well, I could say, any one can write a novel if they have taken a correspondence course in writing novels. So do not expect everyone to turn out first class programme. Some may have a flare for it, others not. All I say is that most teachers, properly trained, are capable of turning out programmes suitable for their own students, or with students with whom they have been familiar.

I am going to finish up now by describing to you the stated advantages and disadvantages of programmed learning. You, no doubt, will be able to think of others during the course of this week.

One stated advantage is that it can alleviate teacher shortage. This argument is put forward widely in Britain, and in America and I assume this must be more so in developing countries. Again, I must emphasize that a programme does not replace a teacher. If you have got a teacher, the programme will help him to be a more effective one. If you have not got a teacher, then the programme will produce some learning on the part of the student, but it will not be as complete learning as the combination of the teacher and the programme.

I am not suggesting here that the teacher cannot possibly teach without the programme. Many teachers are highly skilled and quite capable of teaching large classes efficiently, but in general, with most teachers, and with the size of class that we have both in Britain and I should think out here, it must be very difficult to communicate adequately with every single member of the class, of every intelligence. It is often assumed that this is done, but I think you must know that if you go to the classroom and see what happens there, it is obvious that some students might as well not be in the room at all because they are passed by, and the opportunity no longer exists for them to learn. A programme will enable, at least most students, to carry on taking part in the learning activity, and keep up with the rest. It is worth remembering that with a normal lesson when the bell rings, and you go out, there is not much you can do about it if you did not understand what the tutor was saying, or what he was writing on the blackboard, or what he was demonstrating etc. Perhaps, if you are an extrovert you can go and see him afterwards, but most people won't, so, you come to the next lesson with a gap which becomes bigger and bigger. Well, you can take your programme away, and work through it on your own time — work through it more than once, and this has been found by many students to be a very, very valuable exercise, enabling them to keep up with lectures or lessons. So, programming can alleviate teacher shortage. It won't cure a complete lack of teachers, but it will help, and it will make life a little more pleasant for existing teachers, and they will do a better job.

Secondly, programmes have been found very useful especially in Western Europe, for commercial companies in dealing with the problem of distance. If you have students a long way away, and have to give a lecture involving travelling a long distance to a handful of students, it has been found increasingly useful just to send a few programmes through the post. I don't know whether this might be useful out here. You can, of course look on the programme as correspondence courses — but I would emphasise that programmed learning did not arise from correspondence schools although there are techniques that correspondence schools are obviously interested in. But this business of being able to send programmes round the country as quickly as it takes the postman to deliver, does have considerable applicability and can cut down educational costs. After all, it is not suggested that the student never sees a lecturer.

This technique is perhaps most applicable to re-training. Workers have perhaps an existing trade or training, but need to be trained in a new skill. These would be the mature age group — people up to fifty years or perhaps more. It has been found that programmed instruction does reduce embarrassment — I do not know if this is a problem out here — but obviously your man who left school many years ago, does not like going back to school, with men probably thirty years younger than him; and it is found that if he is working on his own, there is a considerable reduction in embarrassment, and he is much more willing to go along with the course. I would recommend this method to any one who has a problem because of the diffidence of the mature student. Once he passed the rudiments it doesn't matter; he feels confident.

The last advantage I will mention — is that once a programme has been written, validated, tried out, you can be pretty sure it is going to work, and it does mean that you can run it off the duplicator — and so distribute around a wide area. In general, one tries to programme for areas where you know there are numerous students. It is a great waste to write a programme for a very few students. A few copies of published programmes can just be tried out in different areas and countries. If it works get more — if not just send it back: the beauty of it is that we have an objective method by which we can assess the success or otherwise of these programmes.

*Disadvantages.* Obviously as a man whose pay depends on programmed learning, I shall stress these with less emphasis! The first disadvantage is that I suppose you have to write your programmes before using them, they do not exist in vast quantities. Some people consider possible difficulties in the isolated nature of programmed learning. A student works by himself; there is the lack of interplay with the instructor. Now, this depends on the personality of the student, whether it is a good or a bad thing for him — and in any case, we would hope that there would be available a teacher or organiser. I shall be mentioning later on methods for bringing back social interplay between students, at the same time as one uses programmes.

Another thing that is sometimes cited against programmes is that they are boring — that an endless series of small steps, especially to the brighter students — is boring. Boredom can be noted in *any* class, but perhaps to a lesser degree if the student has the feeling that he is getting somewhere — as is the case with a programme. It is noted that in most English secondary schools students on the whole work very hard on a programme that is geared to their level. They don't realise how hard they are working, because most of the time on an average lesson they are sitting listening to someone or scribbling, not thinking very hard. With a programme, it leads them on and it is only after a forty minute period that they realise that they have done some work! This is certainly desirable.

The last disadvantage is that you will get a spread. Students finish at varying times, some slowly, some quickly. This is not necessarily related to intelligence — more to the personality of the student — whether one reads every word carefully, methodically — or whether one is the hasty extrovert who whizzes through. This does pose administrative problems which will be discussed later. We are not trying to place a student in the mould. We are suggesting that the student works within his capabilities at his own pace.

# The Practical Uses

### C. Monk

**Firstly, let me declare my difference, as they say. I differ from my two colleagues in that I have no academic background. I have spent my life in the ugly world of the manufacturing industry and have come into this field of programmed learning in the evening of my days and find it the most interesting thing I have done. In fact two and a half years ago, I joined a group of Management Consultants, and have established a Company concerned with the development of Systematic teaching techniques so much needed in our country — we deal in particular with programmed learning.**

**Now, on the practical uses of programmed learning, I think the best service I can give, is to talk of my own direct experience and to let you, as you are so well qualified to do so, ponder the relevance or otherwise of these activities to your circumstances in the highly varied situations with which you are concerned. In the United Kingdom the trend has been emphatically to exploit these techniques in industry and commerce rather than in education. There are quite a lot of varied reasons for this which we will discuss later on. The situation now, in so far as industry is concerned is not only respectable but fashionable. The Ministry of Labour has been advised by the Senior Advisory Body under our Industrial Act; they have examined the advantages and disadvantages of programmed instruction, and have come round firmly in a recent announcement to the view that these techniques should be used and encouraged. There are also signs now that our Ministry of Education and those concerned more directly with education are changing their views.**

In the early days we had indeed a very strong dose of Harvard-originated techniques. Very soon we discovered that our young graduates found it difficult to absorb the American dogma, and began to develop their own fundamentals, and I am sure that the same will happen to you. To us, programmed learning is a sequence of learning steps, tested to produce a prescribed behaviour.

The more we practice these techniques, the less dogmatic we become, the less devoted to fixed methods, and the more we rely on a more flexible approach to programming. I would like to say briefly that the guide lines which are acceptable to most of our practitioners are firstly:

1. *Elimination of error,* i.e. you do not set out to trip up the learner deliberately as you do in conventional instruction.

2. *Immediate knowledge of results* — not at the end of the lesson or term.

3. *Your own time* — the slow one is not rushed, the quick one not bored.

4. *Finally, the underwriting,* as we put it, of the *performance.* This is the most essential feature. Purchasers of programmes should be buying performance, "do how".

This really means that what we must always seek to do is to find out how the grasp of the subject is to be manifested on the job, rather than the prescription of the knowledge he should have. And in the occupational context this very often starts with a task analysis, so that you can spell out the objectives you are going to prescribe. I hope you will keep in mind this business of performance — "do how" — when you come at a later stage to working on objectives. One or two other points I would like to stress. Programmed learning as we see it is a tool for the instructor. It must not be regarded as replacing or competing with him in the slightest degree. If you have got an articulate human instructor, use him to the *n*th degree.

My next point of importance is that in our experience it is a waste of time to try and classify those topics which are amenable to programmed instruction, and those which are not. The main point is simply whether your objectives can be spelled out with sufficient precision to be of use and then what the economics of the operation are. Having made these points the best thing I can do is to illustrate them one by one, with actual cases. First one

— *job performance.* I think Shell will not mind my alluding to an experience they had. They decided that programmed learning was worth trying out. They selected "marketing" as an area which would be suitable, and the Phillipines as a suitable area. They sent us a paper on the matter and asked whether we felt like making programmes for their use in the Phillipines. We agreed and considered firstly the various problems of language, etc. and were able to do a task analysis of the salesman's job. I think it ran to something like 115 tasks. We described objectives for each of these tasks, and then made recommendations to Shell as to which might be chosen.

Service station book-keeping was eventually chosen. The Service Station Book-keeping Booklet which has since been published in London might prove to have a wider audience.

The programme is put across in four books. You should note that those programmes emerge from a task analysis and from the drafting of objectives before the selecting of topics. They were tested in the Phillipines, and were used in Kenya with encouraging results. They have been found to be applicable elsewhere.

*The range of topics* — perhaps I said boldly that we expect no limitations on the range of things that can be tackled and it is mainly a question of whether the objectives can be spelled out. In Maths we have done some work for a publisher, on simple maths for 8 — 11 year olds. I have got one of some 32 books in draft form here. In order to produce this we have had to use a procession of children from the school and we have had to be very careful not to present this as an invasion of the school. The publisher will be presenting this to the father of Johnny, who has seen that his boy has not been getting on well at school. It has been astonishing to me to see the absorption of children in this exercise. I strongly agree with Mr. Unwin that the question of boredom should not arise with a relevant programme in which the learner is getting things right — perhaps for the first time. I mentioned maths, and here we are also busy on programmes of computer technology based on the City and Guilds course for computer programmers. You may like to know that the Scottish Education Department in our country produced a report recently as a result of some quite extensive research, called "Audio Visual Aids in Higher Education", in which they are very firm that programming has its use even in the field of higher education. You will see around, and I hope to do them in detail, programmes at the apprentice level which will aid them with the theory and practice of their work. I have got here programmes on basic electricity, recently tested on the Sappers School and on REME in England, with the objectives pre-tests and the post-tests, the score obtained, and so on. This is a strictly theoretical exercise.

We also are now very busy producing programmes which are putting across the drills of apprentice practice. The feature of these programmes is that the test of success is not the writing of an answer on a piece of paper, but is the actual production of a work-piece on specified machine tools. Responses are invariably for doing something — turning a screw, setting up a machine. There cannot be any pre-test for you will probably wreck the machine if you try it out first. There is a post test, and the post test is a piece of metal, machined on a lathe or shaper, of a prescibed tolerance. This is, I think, a dramatic and certainly effective method of programmed instruction which is gaining increasing interest in our country.

A further development which has just begun is training in skills. We do not pretend that our machine shop programmes teach skills; they teach drills; they teach you the order in which you should make actions in order to operate a machine tool.

Jumping to another topic in industry. You have already heard of the Product Knowledge programmes for Shell International. Mr. Unwin or somebody mentioned the pharmaceutical industry, who make extensive use now of programmes in putting across to representatives a basic course in medicines. The representative has to call on the Doctor and be convincing in a field in which the doctor must be presumed to know a great deal more than he does; and so the manufacturers of the products have taken the view that they have an interest in putting across to their representatives those aspects of medicine relevant to their products. So we begin a series of which this is the first. Microbiology, will be put across to the representatives as well as the kind of basic medicine they will need in their job. They need to know in depth enough basic medicine to be able to talk convincingly to the general practitioner, and they must not try to be too clever.

Then clerical processes. We are increasingly finding that companies have a problem in keeping correct recording of forms

— which they have prescribed — containing quite vital information.

Shop-keeping too is amenable, and we have tried to get shop assistants to take an interest in shop and personal hygiene, and in the chain-selling of groceries.

Now training for management. You will find on the table a programme which Mr. Granger has brought out from Geneva. This is first of a series which I.L.O. are producing and which we are designing for them. Designed to help managers in insurance practice and with basic management techniques, they are going on to the other basic techniques which the manager of a small business needs to appreciate.

Then, within our own Consulting Group, we have found we have a problem which might have its parallels, in some ways, with yours. We recruit broadly speaking, chartered accountants and engineers to become management consultants. Whether they are chartered accountants or engineers, they have to be trained in profit and business accounting. There is a terrific problem with the engineer, who may be highly qualified professionally but who knows nothing about the jargon. Being an engineer, he is not willing to talk about the things he does not understand, unlike the rest of us who have an arts background, or a professional background in other directions. But your engineer is hamstrung, unless he has it precisely right. And so we have done programmes on the elements of financing and cost accounting, designed to put across the jargon so that the engineer knows with confidence the fundamentals, and from there can advance to the more sophisticated. We have found that these programmes — conceived and built for a very specific purpose — mainly the non-accountant/would-be consultant — are relevant elsewhere. Increasingly, technicians of varying kinds are being pitchforked into management, and they have to learn hastily, all sorts of things that are fundamental to their jobs, and so various companies are asking for these things in order to administer them to non-accountant trainees. This, I think, is an encouraging sign, provided you build a thing for a specific population, there are often features that make them useful elsewhere.

We are also planning, under our Industrial Training Act, to make a series of programmes on the basic techniques of management for the supervisor level — for the foreman. What he should know about work study, etc. etc. These are programmes which I know from direct personal experience will fulfil a very valuable function.

Again I would have thought that this kind of material would have a very wide interest to people other than in industry.

As to the potential uses of programming, I think it would be better to postpone this until later. I would say at this stage that the essential thing to grasp is that this basically is a question of economics. That is, providing you can define your objectives, you are likely to find usefulness for these practices, unless you have more economic alternatives available.

# Preparation of Objectives

### D. Unwin

The following are the various tasks that are necessary to carry out when writing a programme.

Ideally, one should chose a *topic* on a subject with which one is familiar.

The first task that has to have emphasis laid upon is the specification of the *target population* i.e. what type of students.

Secondly, what is the essential pre-knowledge which one must bring to the programme i.e. *subject matter pre-knowledge.*

Thirdly, any other *required skills* must be specified.

It is also essential to describe the *objectives* (aims) of the programme. What is preferred is that the objectives be written down in terms which describe the criteria by which success will be recognised, i.e. state how you will know if your programme has succeeded. Try and describe these objectives in behaviour terms. We cannot see inside the head of a student, we cannot tell by looking at him — it is only the adverse behavior that can be observed. A programme may give a man sufficient skill to work on in ideal conditions, but in practice conditions may vary considerably and it will be necessary to specify the sort of conditions under which he will be working.

We do not approve — rightly or wrongly — of vagueness. If you start off with vague objectives then there is every possibility that the programme itself will be vague in its methods.

Objectives must be precise — these will vary tremendously between different programmes — some will consist of recognitional things, discriminating between things, the ability to calculate something, the ability to reproduce something etc.

We prefer to use such words as 'identify', 'recognise' 'show', 'calculate' "The student will be required to 'know' " — How do we recognise that he *can* know? Only by observing some behaviour, so that we can observe something more precisely. *Understanding* — this is the biggest realm of all.

There are many levels of understanding. The sort of question he will be asked and the answer that is expected to demonstrate his understanding must be indicated. The meaning of understanding will vary according to the individual. If it is understanding one is trying to teach, then some behaviour or phraseology will have to be used to indicate how one recognises this understanding. *Appreciate* — this is another word which should be used carefully, and a substitute used when possible.

If your objectives are clear and phrased in behavioural terms, then anyone who knows the subject will be able to indicate whether the student has reached the objective.

Finally — the test. This adequately measures the performance of the programme in accordance, of course, with the given objectives. The test can be short or long, this depends on one's skill to judge what will sufficiently test the performance of the programme.

I suggest delegates prepare objectives and post tests, and describe clearly your target population. Thereafter make comparisons and comments with your colleagues.

# Preparing a Programme

### P. Thornhill

What I want to put over to you is the preliminary work that has to be done before starting a programme. The first thing is to consider your *qualifications to write a programme* — this is in itself a humbling experience at times! I can only say, as far as this programme is concerned, that I taught this subject, geography, for a considerable number of years, in schools and for the type of exams for which it is intended. It was one of these things that I knew, and knew, I hope, how to teach. I should be very hesitant to deal with a programme in, say, a modern language, because I have never taught it.

Having got past the qualifications of the programmer, the next stage is that of the type of persons for whom the programme is intended, what is termed the *'target population.'* This should be defined fairly clearly in your mind.

In this case, it was intended for the secondary school pupil — aged 12 and over — following the normal school geography course leading to school certificate. At that level, one can assume a fair reliability. One doesn't have to worry too much about a controlled vocabulary as one would do with younger children. This does not mean to say that it would not be suitable for other students, and I have in fact known it used for other pupils.

The next point is that of motivation — I think that the industrial programmer is in a better position than the programmer in the English school. A miner will display more interest in the working of a miner's lamp on which his life depends, than will the average English schoolboy in Algebra, on which his life, as far as he can understand, does not depend. It is important to bear in mind what possible motive the learner can have in wanting to do it, because we may be able to work in the motivation in the programme.

Next is the question — *What prior knowledge can be assumed*? This is very important. I could be honest with you and say that you must work that out in detail before you start the programme. There are certain things which you must be sure about before you start. Sometimes you will need to ask yourself the question — Can I be certain that he knows what is necessary? So, keep this paragraph open — and then compile it as you go along. In this particular programme, it is stated in the preface that we assume that the pupil has previously absorbed a certain amount of knowledge. When you've really got it worked out, you may decide to give a pre-test before the programme. You can say: "If you cannot score 80% or so, then you are not ready to deal with a programme of this kind — and you will have to learn this and that first."

Now we come to a very important point. This is the question of *objectives*. Mr. Unwin has elaborated on this, and it is important enough to merit separate treatment. All I want to say at the moment, however, is that you must be *definite*. Remember that you are dealing with a self-contained programme. State your objectives clearly.

### *The Treatment*

I am now going on to the question of treatment, because your statement of objectives shows where you intend the pupil to get to by the time he has finished.

In this, you want to work out the detailed order of presentation. This is your own worksheet so to speak. It need not be written in such a way that it is intelligible to the student because he is never going to see it. It also involves the question of your teaching methods. This is outside the scope of this course, and we have not come here to advocate any particular form of teaching method. You have, however, to be conscious of what kind of teaching method you are going to apply. Are you, for instance, to create understanding, or simply to induce memorisation?

Again, are you out to teach terminology, or realities? I have seen a programme from no less a personality than Professor Skinner himself, on elementary electricity, and it did seem to me that his main concern was simply to get the students to make the right noise about electricity, and you could do the whole thing without getting an electric shock, or going anywhere near anything electric. Are you going to be concrete or abstract in your teaching? There is another point, are you aiming at the logical order — or at what one might call the psychological order? To give an example, it is on the whole much easier to go for the logical order, and nearly every programme I've seen on the subject of chemistry starts with the atom etc. and thereafter proceeds logically to build up. That happens to suit programmed methods very well, but what of teaching methods? I'm not at all sure that programmed learning always encourages the right use of the best teaching methods. I would say, personally, if I were having to start elementary chemistry, I would want to start with something with which the pupil had had direct experience, something quite simple — such as mixing salt and sand with water, illustrating that the salt will dissolve and the sand will not — and possibly to work from something of immediate experience. This may not be right — I'm merely saying that this is the method that I would like to use.

Some people say that you should work out your treatment to the last detail, and there is a book "Programmed Learning in Prospective" written by and for men of the R.A.F. Educational Division which deals with that in the utmost detail. They are only dealing with subjects which have a clear logical relation, and they say that you should work out your programme in terms of concepts.

### *Frame Writing*

Skinner can almost be termed the originator of programming. His major theories are based on the fact that learning only takes place when there is a stimulus. That was interpreted by many programmers, in the early days, to mean that when you write a programme nothing will be learned unless the student is made to respond actively. The result of that was the production of many programmes with very short frames because the programme writers thought it was necessary to keep on eliciting responses from the students.

I personally wouldn't subscribe to that — many people nowadays do not. I think the knowledge that you have got to respond to something — perhaps a little bit ahead — is a powerful stimulus in itself, sufficient to keep your attention on what you are doing. However, on this matter of response, another unfortunate thing that came out of it was that many writers of programmes thought that they had to make their students respond. You had these programmes written, in which many frames were futile, and were really not relevant to what the student was supposed to learn.

It is now up to me to try to show a few of the ways in which one does try to elicit an active response from the student and I've taken an example from a book called "Good Frames and Bad". This comes from a programme about the Greek Legend Pegasus — the winged horse. The problem is to elicit the word "winged" from the student who has read the legend. You start trying to write one of the frames: "Pegasus had two . . ." and you are hoping for the response 'wings', but it is quite likely you will get the response 'eyes' or 'ears' — so that this is a very poor frame. You try again using formal prompts — like a bird, "Pegasus had two . . .", again they may write 'legs'. Then again you write "Like a bird, Pegasus had two w . . .," 'w' is a prompt towards the right answer. But this is a poor frame. It is better to say "Pegasus was a most unusual animal, like a horse he had four legs and like a bird he had two . . ."

I mentioned *formal prompts* which are quite legitimate to use and there are various ways of prompting people in this way.

The construction of the frame is then of fundamental importance and it may be necessary to revise each frame separately many times before a satisfactory one is found. The main thing is to begin and then revise and revise.

The type of response is also important. A *constructed response* is, as in the example of Pegasus, where the student must make up his own answer. A *multiple choice* response is where there is a list of possible answers and the student must choose the one he considers correct. The Skinnerian theorists would say that on the whole the multiple choice should be avoided because false suggestions are put to the student as well as true ones and a false one may be registered.

A type of frame to avoid where possible is the *copy* frame. Here all the student has to do is to copy a word already contained in the frame e.g. "the air was cold, and therefore the metal was . . ." Here the word 'cold' is to be repeated. Copy frames provide little stimulus for the student.

Whilst the success of programming does depend to a great extent on acquiring an active response wherever possible, it can be argued that a more important factor is the breaking down of the subject matter into its component atoms of knowledge so that it is more easily assimilated. This can also be useful to the programmer in mastering his subject. There is, of course, no reason why there should not be some straightforward didactic teaching in the programme which gives pieces of information. Frames will be used for reinforcing the learning of the basic vital knowledge and essentials.

Lastly, I want to mention the instructions at the beginning of the programme. These should advise the student fully on how to use the programme and what to do and what not to do.

# Organisation of Programme Writing

### C. Monk

It has taken us in the U.K. two years to get from our responsible ministries, recognition of the values of these programming techniques. There is a Ministry of Labour publication, 'The Use of Programmed Instruction in Industrial Training', and it is the Central Training Council's pronouncement on the use of programmed instruction in industrial training. This sets out the advantages and disadvantages as the Ministry sees them. It then goes on to say that "This method of learning which has proved itself and its use, should be encouraged in industry." It deals with research, and contains encouraging words, going on to say that "we consider for practical purposes, programmed instruction has gone past the stage of research, and has now moved on to that of development and use." Our Department of Education has not been as emphatic or positive perhaps because of the deeply entrenched conventional systems. It is interesting to note here in Kenya that it is the Ministry of Education who seem to take the positive initiative — quite in contrast to our experience in the U.K. — and so there are questions which will affect any attempt to organise programmed instruction. Is it to be for basic education — teaching people to count etc.? Is it to be for management — teaching people who are to be managers some of the essential techniques? Is it to be for more particular jobs? i.e. teaching people to sell, and so on. And, depending on whether you select any or all as your priorities, there will be implications for the kind of organisation you establish. So, I hope that good use will be made of the material for what it is worth, in your own particular context.

You might be interested to know a little bit about the shape of my own particular organisation, created according to situations found in the U.K. There is a technical director, an 'editor' — for the want of a better title. Then we have a company secretary, who is also secretary of the group. There is also a production manager, and some twenty programmers, including five project leaders as we call them. Sometimes we have to bring in consultants in particular skills; and of course occasionally we have to have 'experts' who provide the material for many of the programmes. This unit is doubling its size annually, and I see no reason why similar organisations should not thrive in a similar context.

Programmers have to be recruited — and this will happen whatever the organisation. What sort of people do you want? It is no disadvantage to be young — on the contrary, in this case. On the whole, good examinees tend to be better programmers, but of course this is always the case. Mainly, however, the good examinee has the gift for the capacity for analysis. He has to be able to figure out the real 'do-how' of the job, or the knowledge in front of him.

The programmer has to be receptive, because unless he is an original genius — who doesn't exist! — he has to learn from people who know an awful lot more about the subject than he himself. He has to have humility, as my colleague so rightly stressed earlier on, because he will not get his data if he knows all about it already. He has to have the ability to communicate — teachers, we find, are not necessarily good programmers. Some people try to distinguish between the analyst and the frame writer. We don't, and I don't recommend it, partly because the problems of communications are too great.

The project leader tends to be the person who goes out and sketches the outlines, the analysis; but I hope that we shall never depart from the idea that the men who we recruit are capable of doing the whole job, from beginning to end.

Now, writing the programme — we have data. On our projects almost 35 per cent of the time is spent on analysis, up to and including the agreed criterion test; 20 per cent to 30 per cent on frame writing; 20 per cent to 30 per cent of time on testing; and up to about 15 per cent on what we call administrative tests.

An important point is to be able to assure the people you recruit of advancement. This looks like a rather narrow field but staff development has to be considered.

Finally, a most important point is organising the production. One has always to reconcile oneself to ugly things like delivery dates, and of course time is the essence of the costing. This is often a difficult thing to do, for a good programmer likes to be a perfectionist, and often underestimates the time he is going to take. There is need for time discipline — there is need for exchange of criticisms. This is very important, I think. One has to get over the fact that discussion is of very little use unless it leads to action.

# Methods of Presentation

### C. Monk

Programmed learning is a tested sequence of steps of learning leading to a prescribed performance. At least that is my definition of it! The magic of it does not come from anything occult or mysterious. Certainly not from any device for its presentation, however elaborate this device may be. It simply comes from defining at the outset what the learner is going to do, and how precisely he is going to demonstrate his grasp of what he is learning. It will be tested on the ground on which it is going to be used and with the people who are going to use it, until the objective is shown to be attained. At some stage during this process you have to take a decision on how you are going to present the programme. The point to stress, however, is that this is a *secondary* consideration.

There is a good reason for all this repetition –– mistakes have been made — and how very costly these mistakes can be! People have assumed that the device for the presentation came first and the programme second. It happened in the U.S.A. early on that these mistakes were made, and unbelievably, the very same mistakes were made later in the U.K. One pathetic fallacy of this, is the fascination that 'gadgetry' has for the human being. People can be confused — teaching machines are not the be-all and end-all of programmed learning. It is the programmes that are of primary importance.

In a sense, of course, it is perfectly valid to identify this technique with teaching machines. A text book is in a sense a teaching machine. Certainly, a programme in book form can be looked on as a teaching machine. This is, of course, not what we normally mean by the term. We normally mean a fairly complex device with lots of knobs and handles attached to electrical fittings etc.

I, and people like me, have a vested interest in being catholic about these devices for presentation. We are apt to work for teaching machine manufacturers, who simply *have* to acquire a repertoire of programmes in order to sell their machines. We find ourselves working for individual companies, for they normally have very clear views on how the material should be presented. Most large companies not only have very concrete ideas, but they have their own printing arrangements etc. and very formal ideas on the presentation of the material that they are going to use for training. Again, book publishers have their own ideas about presentation.

Obviously your decisions as to the types of devices used will be based on the availability of materials elsewhere, but most of all what is most suitable and practical in your own context. Economics, of course may have a very special implication in Africa, but I hope that you will be able to draw your conclusions if some of our remarks are not in keeping with the varied conditions that one encounters in developing countries.

Examples: If someone is to be taught an actual sound, obviously it is done through the ears — by some audio device. If you wish to teach a 'medico' the significance of a heartbeat, then again an audio device is the thing. If you want to teach an operator to use something with his eyes and hands, then the ear is not the suitable form of communication.

If an apprentice has to learn elaborate controls — then perhaps a colour slide on a projector, or again a colour illustration on a book. The language laboratory of course is the classic case of the oral presentation.

Cost, of course, is always a relative thing — and careful analysis is always advised beforehand, bearing in mind the numbers involved. We frequently use what we call job-panels. This is a foolscap piece of paper, stuck on hardboard, put alongside a machine, and then everyone comes along and works through the panel. It is of course, really a programme being "tested".

# Research Findings

### D. Unwin

There is a vast number of published papers and studies of one sort or another since Skinner's work — which has been mentioned especially since the mid 1950s. Research into programmed learning has been given particular impetus in the United States by the various educational provisions of the National Defence Act, where psychologists and educationists and such like have been able to acquire vast sums of money to investigate all aspects of the subject.

I want to go through some of the more popular research investigations and to give you a summary of the findings. The first and most obvious topic of investigation is to compare programme methods with orthodox teaching methods. There are many results either way, but not much difference has been shown. In some cases it has been found that the programme method works better than the teacher — instructor — lecturer. Other research workers find the instructor to be better than the programme. Frequently, it is found that students work faster than the programme — this can be valuable. Many results of course show that there is no significant difference at all. I think that it is too early to say that any comparison between these two teaching methods is valid. Many factors militate against valid comparisons — in particular the ability of the teacher and how good a programme is; and of course whether the teacher regards the programme as a challenge. In general, one can assume that the teacher will make a greater effort if he feels he is being compared.

So, the only conclusion we can draw from this, I think, is that programmed learning is certainly on a par with normal teaching, and it has succeeded in showing that if you can properly integrate programmes into teaching courses, then you are going to get the best value. Probably the most important single observation is the motivation of students. A teacher can introduce a programme in such a way that the student will do badly. But where the teacher is keen he produces a better result.

Secondly — many experiments have compared programmes prepared in paper form and those prepared for a machine. In general, programmed texts are at least as good as those presented on a machine and it is usually very much faster. This is not always so, but by and large there are very few real advantages in a machine. However, machines are useful in the testing stage of a programme, where it is essential to eliminate cheating. There are, however, those programmes which have no equivalent in text form e.g. those using tape. Here machines may have definite advantages.

Research has been done on the *types of response*: constructed response, multiple choice and constructed choice.

*Constructed response* — a blank to be filled in by a student is very popular (and was used generally by members of the conference in their own programmes). The student has to make up his answer. *In multiple choice* the student chooses from a list.

Comparing these two, if you are teaching in order to get students to recognise things, multiple choice is easier to deal with by a machine, though machines can be used in the constructed response.

*Branch and Linear Programmes* — there would appear to be no real advantage in branch programmes from experiments conducted.

*Skip Branching* is useful with students of a wide educational range, where the better students can by-pass some of the programme.

*Tests* should be included at each stage of a programme, especially where cheating within a programme is possible.

*Size of frames* — results show the simpler the frame the better the learning.

*Number of frames* — generally the more frames there are, the better the learning.

*Lay-out* — in general frames should go down the page with the answer, which can be covered, alongside the following frame. Answers can also be on different pages. The former is often best because it is easy to recheck without having to search through many pages.

*The relation of intelligence of students to programmes.*

Experiments show that very intelligent students can answer programmes covertly i.e. think their answers rather than write them. But a good programme can be used by almost any level of student. Where there is danger of slowing reading speeds, then covert answering helps, but here tests are essential to gauge progress. BUT — a programme should not be thought of as a test.

With *non-text programmes,* e.g. those projected on a screen, it means that you must have group pacing but this means homogeneous groups of students. Experiments have been carried out with pairs of students using a text with discussion at difficult stages and results showed that groups remembered more later on than those working individually.

*Computer based learning* — this is based on adapted teaching machines where the machine can be adapted to the speed and intelligence of the student. It would appear that this type of learning will develop fast, and whilst it may seem remote at this conference, it is likely to be nearer than most of you think.

A *Report* to watch for — appearing around October 1966 — is that of a Conference held at Loughborough in April, 1966 and papers on the progress in Programmed Learning called "Aspects of Educational Technology" to be published by Methuen.

Also, read regularly the periodical "Programmed Learning."

# Development Testing and Economics

**C. Monk**

There is a distinction between the situation where the teacher is producing a programme for the students and that where a programme is being produced for the world at large. In the former, developmental testing can be more cursory than in the latter.

*Case Study in General Subjects*

My first education job was to produce a book on elementary Mathematics. This was done in 36 8" × 5" books. The aim was 80 — 80 (i.e. 80 per cent of the students will get over 80 per cent in attainment) fashionable three years ago from America. It was found that this formula was meaningless i.e. what was the standard of testing? It was finally agreed that pre-test and post-tests should be selected by prominent educationalists who would agree to the tests. Eventually tests were agreed, and pre-tests were given to groups of children. Those with less than 40 per cent were given a programme and the programme post-tests, where there had to be 80 per cent attainment before the programmed books could be generally accepted. This took two years and it has been completed now after many difficulties.

*Case Study in teaching Electricity* (aimed at typical day-release youth with little formal education).

A pre-test was done by the Royal Engineers' School at Chatham. The programme was divided into nine parts, with three sections, and the post-test was based on this arrangement. There was a very wide range of pre-test scores average 41-2%. In the post-test all got good results with a very narrow range of post-test-scores! A very satisfactory result for the programme as a whole.

*Notes on Economics of Programming*

1. Look for the situation where there is a large number of people benefiting and where the teaching content is reasonably stable, in order to get financial benefits.
2. On absolute costs, the main item of costing must be based on time — the time to prepare a programme.
3. Costs can be expressed in terms of instructional hours but this raises many difficulties.

# Education by Correspondence

### L. Edstrom

First, I think that we must say something about the nature of correspondence instruction, since we have been learning a great deal this week about programmed learning.

Correspondence instruction can be described as a means — more or less dishonestly — of making money in the quickest possible way! But this is not the kind of correspondence education with which I wish to deal. I want to emphasize that I shall be discussing only the reputable, worthwhile courses and not the kind of commercial courses which one sees in all parts of the world.

Correspondence instruction can be defined as instructional material combined with regular feed-back to the tutors and from the tutor to the student. It is an educational dialogue.

There are two main features common to correspondence courses and programmed courses. Firstly, they must be self-instructional. In principle the student must be able to go through the material without relying on a teacher. This makes the courses something by themselves — in this respect they differ from text books. Secondly, the best courses are also self-checking.

There are two kinds of correspondence courses:

1. What I call an extremely primitive kind where one takes a lesson and adds a few questions at the end.

2. This is the course of a series of lectures, explained step by step with self-checking questions. This allows, just as in programming, free pacing. The student can go on at his own pace, with all the advantages and social disadvantages that this may lead to.

A great deal of research has gone on in the field of correspondence instruction in Sweden especially in the comprehensive upper and secondary schools. Ten to fifteen years ago the questioning was done rather haphazardly. Nowadays, it is done in a more scientific fashion.

Obviously many questions are being asked, especially in the relationship between programming and correspondence instruction. There are three ways in which programming can be used in this connection:

a) One way is simply to take a programme and construct some questions.

b) One can base a course on a regular programme. In many cases, particularly in the U.S.A., many of these are called study guides, with the use of a text book, referring to certain pages, chapters etc. with following discussion.

However, the above two methods have not been used extensively.

c) Finally, in an ordinary correspondence course a programme can be integrated. This method has been used in the past, especially in Sweden.

Emphasis is now placed on the technique of showing students how to find and use relevant facts — as important, if not more so, than teaching the basic facts — for this is really what they have to do when they are grown up. It is not always the man who has the right answers that is wanted, but often the man who has the right questions, and is able to find and use the facts. Obviously, one can't teach study techniques to people in the ordinary way — they wouldn't benefit from an ordinary course, and so programming would be useful. A whole course of this has been used in the University of Gothenburg; programmes using such things as margin notes, library, the latter being considered vital in studying.

This, then, is obviously one important use of programming, and correspondence courses can benefit.

The question then arises — when do you programme? There are, as I see it, many subjects which cannot be taught by any other means than by programmed instruction. Programming can be used as a means of forming a basis of instruction in some spheres, to ensure that the students are at approximately the same basic level. Furthermore, programmes used initially in any educational system, with part-time correspondence education, can have motivational importance.

In every subject, I think there are vital skills that should be programmed — these being elementary skills that have to be acquired by everyone — and to every programmer, this is the easiest way of achieving that goal.

Then there are what are known in Sweden as the "verbally non-gifted people" who can get on well with a programme. Experiments have been done in Sweden for use in the 7th to 9th school year of comprehensive school in mathematics. The linear method is used with simple teaching machines, and research has shown that the results have been good, and certainly on a par with good teaching instruction. Other classes were taught by the best mathematics teachers they could get, and there was no significant difference. One point which was illustrated was that the subject presented in this way was not so difficult — but was boring! I do not think, however, that any wider inferences should be drawn from this for obviously there are many factors which contribute. It merely proves that there are a variety of educational tools which can be applied in different ways and in different situations.

Obviously, the best thing to do is quite objectively to analyse the subject as one does in programming, and use the same methods; then ask — What is the best way of attaining these educational goals? In one case, it might be the use of programmes, in another, correspondence instruction, in another visual aids, etc.

I think it is often assumed that face to face teaching by a teacher is the most effective and economical, and, in short, the best but this is not necessarily so. This is something that should be kept in mind when discussing the merits and demerits of different systems. There have been discussions on this — records of which can be found in an organisation which calls itself "The International Council on Correspondence Education." (I.C.C.E.) This is a world-wide organisation for correspondence instructors in all parts of the world. A conference is held usually every four years and at their last conference, programmed instruction was discussed.

The President of the above organisation is at:
Sydney Technical College,
Broadway 1, Australia.

This is considered an exclusive organisation and copies of their reports are not normally for sale.

There is only one worthwhile bibliography of correspondence instruction, it is:

"An annotated Bibliography of Correspondence studies," by Gale Childs of the University of Nebraska. This has been prepared by the Division of Correspondence Studies, National University Extension Association in the United States of America, of which many Extension Departments in the U.S.A. are associated members.

# Questions and Comments

### Programming and the Teaching of Judgement

***Comment*:** It is a well-known fact that in cases where one has to make one's own judgement, there is a great deal of drudgery before one is able to make that judgement. Here I would suggest that this is where programmed learning can help. It can help the teacher to overcome that initial drudgery which predisposes being able to make the judgement.

### Programming and Literacy

***Questions*:** Is it possible to put programming into practice by any means other than writing, e.g. with people who cannot read or write?

***Answer*:** This is one example where the tape-recorder can be used, i.e. by words coming by the ears — and so one doesn't have to read. The teacher could read the word on to the tape-recorder and play it back to the students; a student being able to stop and start the recorder in the event of his wishing to retrack, by means of pushing buttons etc.

***Question*:** Isn't this unrealistic to expect illiterates to press buttons etc.?

***Answer*:** This is where the teacher comes in — for, even with programmed learning, the teacher is still required, especially in dealing with illiterates.

### The Life of a Programme

***Question*:** Are programmes once and for all?

***Answer*:** No, generally all the time they can be improved, and programmes are like a continuous comment.

## Repeating the Use of a Programme

*Question*: Is there any advantage in students going through a programme more than once?

*Answer*: This is difficult to generalise, but it is often useful, especially where a programme is used for revision. Students doing a programme for the second time need not write their answers.

## Programming and Costing

*Question*: My impression is that although programmed learning is useful, in that it breaks a subject down into small steps and so makes it easier to learn, it would nevertheless prove to be a rather expensive technique.

*Answer*: It is of course, difficult for us to appreciate the economies of the thing in your terms. If, however, one has a good and experienced programmer, it is fairly easy to turn out any number of programmes on ordinary duplicating machines. If the programme has already been tried out previously, then there is no need to incur extra expense by experimentation. One can then circulate a large number of these programmes for the cost of only the paper. One may even be able to rely on published papers where they exist. I would have thought that there were no cheaper means than turning the handle of the duplicating machine. Is the price of paper a costly one?

*Question*: I am thinking of the time element — cutting stencils etc., and of the person who has to teach as well as deal with the preparation of programme.

*Answer*: What is found in Britain is that once the teachers have learned the techniques they become very enthusiastic, and thereafter their programmes can be simply circulated.

*Comment*: The duplicating etc. wouldn't seem to be a difficult problem — but perhaps the writing, testing and compiling of the programme is the time-consuming factor — and therefore expensive.

*Answer*: Is time-consuming necessarily the same as being expensive?

*Comment*: The cost is not insurmountable, and there has been evidence already of the keenness of teachers to write and try out programmes.

*Answer*: A great deal depends on how widely applicable the programme is. If a programme is limited to about 200 students then it does seem as if a lot of time and effort is being made. However, if a programme has been written by a good and experienced programmer, and distributed to a number of schools, where the teaching is rather good, obviously the effort would seem more worthwhile, and I would suggest that you look for key subjects, widely applicable, making sure that no two are writing the same programmes for the same area — so saving manpower.

*Question*: There is one serious omission. We are all talking on the assumption that programmed learning is a good thing, and that it is something worthwhile adopting. As far as most of us are concerned, it will be the policy makers who will decide whether this method should be introduced into schools on a worthwhile basis — also something that could save a lot of money. I would have liked to see some concrete example of information that had been put across as a means of proof that this method is time-saving, money saving etc. I am sure that some experiments have been carried out in this sphere — is there any evidence of this?

*Answer*: It is not so easy to give an economic breakdown because obviously we don't count the cost of duplicating and paper etc. Also, much of the labour has been entirely voluntary, so, we cannot give exact figures. Here again, of course, one can say that saving money doesn't necessarily mean that you are spending less — it may mean that you get more for what you do spend.

### Programming and the Teacher Shortage

*Question*: What we really need to know more than anything else is: to what extent can programmed learning be a substitute for a teacher? Many of our students are in scattered places — out of reach of normal facilities. Is there evidence of success of students working on their own?

*Answer*: Yes, a good deal — experiments where a group of students, having been divided into two; one group receiving normal instruction, and the others being given the programme to work out; subsequent testing has shown comparable learning between the two groups.

*Question*: Is it used as a technique?

*Answer*: I think it is, so that correspondence colleges are becoming aware of the technique — these colleges, of course, have deeply entrenched ideas and are conservative in their methods of operation, and haven't gone in for it in a big way as yet.

### Programming and Liberal Subjects

*Question*: There are some subjects in which the whole purpose of study is that of understanding. I note a singular lack of programmes in this field. Those which are job orientated are obviously proven. On those in which you are concerned with ideas, such as political science, there seems to be tremendous shortage of evidence.

*Answer*: At present there is a great shortage of programmes of any kind, and it would seem to be sensible to fill the gap in the fairly obvious subjects — that is the ones in which it is known that programming can do well. I am sure, however that programming can be equally well applied to the liberal arts field even though it may be difficult.

### Programming and Class Room Techniques

*Question*: How does programming compare with other techniques?

*Answer*: In fairness, one should always query whether programming can be done and if it is going to be done, the *best* way of putting over the knowledge. It may turn out that in some cases it is better to use some other means of communication. However, for adults, it has the advantage that it provides the avoidance of embarrassment on the student's part by his not having to show ignorance in an aspect of the subject matter — he can figure it out by himself.

### Programmed Learning and Reading Speeds

*Question*: Is it not likely that the wide use of programmed texts, because they require detailed word by word concentration, will slow down reading speeds? This is important here in Africa since there is a great need to improve reading speeds and anything that militates against this will not be popular?

*Answer*: It is true that a programmed text needs careful reading. However, if it provides the most efficient learning then this should be sufficient incentive for its use. In any case, I should not imagine that a student will read nothing but programmes, he will have to go on reading large quantities of books. A programme can provide a stimulating diversion from the monotony of reading books but will not replace them.

# Note From Shell Representative

### Mr. Ross

The Government of Kenya is considering a proposal made by Shell for the establishment of a Programming Unit; briefly, Shell would provide facilities in Nairobi, including experts, for the training of five to six Kenyans who would be made available by the Government, to be made familiar with these techniques.

As a test piece, a number of programmes would be prepared, conveying basic commercial knowledge in Book-Keeping, etc., with particular reference to the small business man or trader. This field has been chosen because of the urgent need to assist the Kenyan to establish himself in business and also because it is a field that Shell has experience in, and facilities to provide a "test bed".

It is envisaged that the project, which would be considered a pilot plant, or even an extension of this Workshop, would last about eighteen months. It is intended that at the end of this period it would be sufficiently self-supporting to enable it to extend its activities to a wider field of programming under the direction of the Ministry of Education. These activities would include the training of programme writers.

May I anticipate the question "What does Shell get out of this?" — Shell's experiences in programming have to date been most encouraging; they are convinced it has a contribution to make and they wish to identify themselves with this contribution; at the same time Shell would hope to further their knowledge.

# Conference Resolutions on Programmed Learning

1. THAT PROGRAMMING AS A TEACHING TECHNIQUE HAD CONSIDERABLE VALUE IN THE GENERAL FIELD OF ADULT EDUCATION IN DEVELOPING COUNTRIES AND ESPECIALLY IN REMEDIAL ADULT EDUCATION.

2. THAT PROGRAMMING AND SELF-INSTRUCTIONAL MATERIAL HAS SPECIAL VALUE WHERE, AS EXISTS IN MOST DEVELOPING COUNTRIES, THERE IS A CHRONIC TEACHER SHORTAGE.

3. THAT PROGRAMMING IS ESPECIALLY USEFUL IN THE TEACHING OF ADULTS WHO ARE FORCED TO LEARN ON THEIR OWN.

4. THAT PROGRAMMING COULD HELP IN IN-SERVICE TRAINING PROGRAMMES e.g. FURTHER TRAINING OF AGRICULTURAL INSTRUCTORS AND ASSISTANTS ETC. WHO COULD NOT EASILY BE BROUGHT IN TO A CENTRE FOR LENGTHY RESIDENTIAL REFRESHER COURSES.

5. THAT PROGRAMMING TECHNIQUES SHOULD BE APPLIED TO THE FIELD OF FUNDAMENTAL ADULT EDUCATION AND PROGRAMMED TEXTS BE MADE AVAILABLE IN SUCH SUBJECTS AS HEALTH, HYGIENE AND AGRICULTURE.

6. THAT PROGRAMMED INSTRUCTION AND CORRESPONDENCE COURSES COMBINED WOULD BE WELCOMED AS A MOST VALUABLE MASS MEDIUM OF EDUCATIONAL COMMUNICATION.

7. THAT PROGRAMMED BASIC COURSES FOR ADULTS IN SUCH SUBJECTS AS GEOGRAPHY, HISTORY, ECONOMICS WOULD BE VALUABLE IN THAT THEY WOULD PROVIDE, WHEN WORKED THROUGH INDIVIDUALLY, A FOUNDATION FOR MORE COMPLEX SUBJECTS WHICH ARE TAUGHT IN ADULT CLASSES OF A LIBERAL KIND AND HELP TO EVEN UP THE LEVEL OF THE STUDENT.

8. THAT DELEGATES SHOULD ENCOURAGE THE USE OF PROGRAMMING TECHNIQUES IN ADULT EDUCATION IN THEIR RESPECTIVE COUNTRIES AND THAT PROGRESS SHOULD BE REPORTED BY REPRESENTATIVES AT THE NEXT CONFERENCE MEETING AT KAMPALA.

# Part 2: Research in Adult Education

## Research and Public Policy

### R. Kidd

It is a pleasure, and I count it a privilege, to be with you and to learn a little bit about Africa. I will not apologise, for my ignorance in this respect is unavoidable; I might apologise for other things which are less so. I simply say this because you will have to make application from my remarks, to African society and conditions. I will probably be rather critical from time to time about us, about the calling of adult education, and I hope that when I seem to be thus, you will not be offended, because I am one of those mainly responsible for our errors in this respect.

We are faced here with the age-old problem where we know, but we don't always act on our knowledge. There is very little action by us in research, and here we are, sharing a conviction about our need, but we have too little direct experience, whether personal or within our organisations. We must deal with this dilemma ourselves; we cannot leave it to someone else to bale us out; we cannot leave it to someone else to solve this problem. At least we must initiate any solution, and we share this challenge with our fellow adult educators in all other countries.

Now, I propose to talk briefly about four things. Firstly, why research? Secondly, national needs and policy; with a quick review of those topics that seem to be significant. Thirdly, I will touch on the concept of continuous learning and life-long education, and explain why I think that we should develop our research in relation to this concept as much as directly in adult education. Fourthly, to deal briefly with what we should be going to do.

*Why engage in research?* Firstly, because it is now known that there is specific evidence to show that production and wealth in any society is more closely related to the amount of scholarship and research that is going on than to any other factor.

Secondly, there is importance in social research, as well as research in the natural sciences, because of the influence of research findings on public policy. This is a factor that we haven't always taken into account. Another feature, of course, is the fact of incredibly rapid social change. Obviously, in these situations we need to take every possible opportunity for keeping up to date.

Another point about research is that it helps us deal with important problems as well as urgent ones. Usually the clamour of the urgent ones prevents us from getting on with the important ones. There are some urgencies partly because we are beginning to be successful. Adult education is gradually becoming important in many parts of the world and we are going to be asked to give leadership, to give answers, to understand and to know more that we know at present. If there is ten times the amount of money available now than there was for adult education, what are the most productive ways of using it? In my country twenty-five new community colleges will be built in the next two years. Do we know enough to be able to advise those who are building those colleges to develop them appropriately for the needs of adults? In India an enormous sum of money will become available to the campaign for literacy. Now, since the policy of selection has been approved, further questions are being asked — such as, "What is the criterion for selection?" These are the sort of questions that we have to be prepared to deal with.

As important as doing research is communicating the results. There is a good deal more known about the learning of adults than we have as yet shared. It is accessible but we haven't got it into the pipeline. We are not exchanging regularly, systematically and quickly, what work is being done on the education of adults. This is so in the field of literacy, as has been illustrated by remarks in the conference. Research carried out in one culture may not be too meaningful in another; even so, checking and sharing is required, and we need to know that the work has been done.

*What about national needs and national policies?* We have heard about the drastic change of attitude of economists to the problem of adult education. Five years ago it was not possible to get money from the World Bank for education or for broadcasting associations in education — this is now considered as an investment, as an essential component of development. Here is an extract from a recent statement by the Vice-President of the World Bank — "Since the bank turned its primary attention to the problem of less developed countries, it has concentrated both its technical assistance and natural resources upon the economic aspects of development. However, we have learned through the years that economic growth and social progress are both inseparable and inter-related — that such things as hopes, enthusiasm, skill and knowledge, curiosity, vision and wisdom are no less important than steel, cement, sand and machinery. The far-reaching implications of this have been borne upon us in the Bank, by the most practical kinds of experience in the countries in which we operate. The understanding we have gained from this experience has compelled us to regard education as an inevitable object of our concern. Many of us in the World Bank were slow to recognise the relationship between education and economic development."

Many of us have known the secret for years — and many of us have been talking about education as a component of development, and it is rather late in the day for economists and bankers to learn this. But we didn't help them very much. We didn't have the information from studies — or even a well developed point of view — which compelled attention by economic plans to this important truth. To this extent, we have been responsible for that rather slow development. Nor are we in a position now to be very helpful. There is in Unesco, set up two years ago, an Institute of Economic and Educational Functions, and some of the subjects there have to do with the education of men and women. While we have made proposals about topics, these have not been developed into sufficiently rigorous forms to be considered of high priority in the work of this and similar institutes. There is, of course, a fundamental change in the relationship to planning for education, not only with economists but also with governments or even with universities.

When discussing the importance of the economic aspect of education, we were rightly reminded that education is more than an overhead expense; but when it is seen only as an investment, there may be in the short run a judgement that it doesn't really improve the situation, in the short run it may not seem to raise the economic conditions of the people. It is important not to view it only as an investment. It is important to look at the other considerations — the over-all values, the contributions that education makes to society.

Even more important is the relationship of education to morale, and steadiness of the whole population under attention. There is a close relationship between education and the attitude of people to innovations. There may be a relationship between education and willingness of a sufficient number of people to sacrifice for the future. There may be a relationship between education and constructive foreign policy. The amount of research done in this area is almost nil. We have not begun to formulate the questions or to develop them in terms where research may be possible. These may be the most significant questions. And it would be a strange judgement on us, if in twenty years time we will have made no contribution to the understanding of the relationship between the education of men and women and these factors in the development of strong and vigorous people.

I believe that in the development of research, it is more important to do it in relation to the concepts we have developed in adult education — the concept of continuing learning, the concept of the whole process of learning from the family and nursery schools, elementary and secondary schools, higher education and adult education, than it is to concentrate at the beginning on research in the learning of adults. I believe that it is essential for us to take our own concept that we have developed, and take this seriously and look at its implications, not only for education in secondary schools and universities but also for adult education as such, and I think that if we do frame our research activities with respect to this life-long concept, we will get more support, but also we will be asking questions which are more useful. It is not possible to deal with all of the aspects of continuing education, but I think it is important for us to consider some of the aspects here.

The first is that the whole life span is needed for the achievement of certain educational goals. How do you, for example, teach international understanding in an elementary school or secondary school or in a class at university? — or in a single course in adult education? Or how do you deal with justice or courage etc., except over a long period? How do you help people to become helpfully critical of themselves in a society? Things of this kind, as essential learning, require very long periods of development. It seems to me we will not seriously deal with these subjects until we look at them in relation to development over the life span.

The second aspect of this is that I think a view of the whole concept will help to remove some of the discontinuities in life, the gaps between our elementary and secondary schools, gaps between the vocational and technical and liberal education, and some of those other disparities and discontinuities which are so difficult at the moment. With the concern for this concept to help us, those of us in elementary, secondary schools, adult education or universities, all remember we have a common allegiance to truth, and we all need research about learning, and those are common needs and perhaps we can make common efforts towards them.

Another aspect of this is that without the concept of continuous learning, there isn't much meaning to educational planning in the first place. Until we can see all education, the needs for all aspects of education in one piece, then we will not get any attention from the educational planners.

*What is it we can do*? First we need to think together, to make an inventory of the questions on which we need to know more; that can only be done by us, no one else can do that. We have heard of a few examples in the past few days: questions raised with regard to literacy, questions raised about the use of programmed material, as against discussion groups, in furthering certain educational objectives; what is our choice of methods or techniques? The questions raised about the best way to introduce a change — by the agricultural expert; or by the politician who may not understand the theory so well, but who knows the way to talk to the ordinary people? Perhaps this is researchable!

Well, not only are we going to have to do some research, but we are going to have to learn how to interpret it. This inventory will have to do with learning itself — this is a very large and important field. It will have to do with administration and organisation. It will certainly have to do with how we are going to bring about desirable change.

Then we must do some thinking when we can, about who is going to be responsible for research; what kind of institutions we are going to place them in; whether they are going to be in separate countries or in one region. Who will do it? Will all agencies engage in research? Will our own agencies do it? Will the University do it? Will government departments set up research forces on adult education? If it is the university, are we going to set up a new institute — or can we work with our academic colleagues in the social sciences and elsewhere? If not, how do we get their attention? If we are going to do this, where are we going to publish — because publishing is an essential part of this enterprise? In what way will we communicate what we learn, what disciplines are we concerned about? Psychology, sociology, anthropology, economics etc. — or all of these together? Can we find some ways of making our academic colleagues share in some of these problems?

The next question that we must consider is: social scientists have been engaged for some time on problems related to ours — they have some information and experience for us. How do we keep in touch with them, or how do we learn it? What has been learned about adult education in fields far removed from ours? — experience in industrial managemnt, for instance, the famous Hawthorn experiments which had so many implications for learning? What has been discovered in various countries about military training, how men face entirely new situations, and how groups of men can be helped to rely on each other and develop the kind of morale which make sacrifices and extraordinary behaviour possible?

Now, a few remarks about what is going on — quite a lot of research does go on through government organisations, Unesco, the World Bank and the World Health Organisations. Much of this is inventoring, surveying and fact-finding; much of it is considerably important to us. There are well-served fields which are not adult learning but the findings of which are immediately applicable to us: communications, surveys and research in industrial training, international developments, how people are taking to new patterns of living etc.

Then there are countries where a lot of research has recently begun; good work in Russia, Czechoslovakia and Yugoslavia. We have found out very little about what goes on in these Eastern European countries, and my guess is that much of it would be extremely useful to us. Work, of course from the U.K. we know more about, this is reported in the British Journal of Adult Education. There is also extensive work going on in North America, and once a year there is a collection of detailed reports about significant studies in their journal. There is some work going on in Canada, and we are busy creating a research institute — a wing of an institute of adult studies, which will have four or five people engaged primarily in adult learning.

I have raised lots of problems and there are many more than can be solved. Our chief achievement at this conference would be the exchange of ideas and discussion of these various problems.

# The Main Areas of Research

J. Lowe

I thought I would like to begin today by underlining some of the points made by Dr. Kidd yesterday. Firstly, as to why research has been neglected in the past, and secondly, as to why we must take it seriously now. Everywhere, it is on primary and secondary schooling that emphasis is laid. In the developing countries, if you look at the way resources are spent, you will see that they do in fact devote a really minute proportion of the national income to the adult education programme as against other things. In Britain itself, where adult education has been long established, the amount of money which the Government spends on adult education is risible from one point of view and tragic from another, a minute amount indeed compared to the total spent on education. A second reason is that most people in the field have seen themselves as pragmatists who are too busy to bother about research. Another difficulty has been, in the new disciplines relevant to our field most of the researchers have been desperately anxious to establish themselves. So far, practically none of them have been interested in adult education, and certainly not as a research field. Then, too, I think they are probably put off by the complexity of the problem of educating adults. Educating children in school within formal, physical conditions is quite easy compared with trying to deal with the problem in relation to adults; the sheer size and intangibility of the problem is inclined to scare them off. I might add, as a further reason, the sheer lack of funds; research can be expensive, and most people have come to regard it as a luxury that could be done without.

Then why is research so important at the present time? Well, first of all, because in spite of what I said earlier, we really ought to test our policies from time to time, and we need also to build up a vastly increased volume of knowledge, in order to formulate new hypotheses. If one can only deal with public officials and governments, and those who hold the purse strings, one can confront them with an array of evidence demonstrating that something needs to be done. I always like to quote an instance of what I mean: a few years ago, a delegation from the National Institute of Adult Education in Britain went to see the then Minister of Education, and they commented on how vital adult education was, and what a miserable amount of money the government spent on it, and the necessity for government to spend more. I am told by some of those present, that the Minister replied in his most indomitable way that he saw no evidence of the demand for adult education, and that even if there were, it did not necessarily follow that money should be spent on it out of the public purse. "Give me your evidence," he said, "and I will try to do something about it — maybe". It is absolutely futile to say that the evidence is staring us in the face. Anyone ought to be able to take for granted the importance of life-long learning, even from a selfish national economic viewpoint it should be clear that we have to train and re-train adults to do their jobs efficiently. But one really has to provide evidence if one wants governments to produce money. Obviously, we need to have research, if only to provide effectiveness as practitioners. We need research into how we organise our programmes, how we decide what to teach, how long our courses should be, how we organise our staff resources and so on. But above all, I think the only way in which one can plan on an effective basis, a national plan for the future, is by undertaking a programme of long-term research.

Recently a group of Americans got together to produce a book called "Adult Education: Outlines of an Emerging Field of University Study". It is published by the Adult Educational Association of the United States, and I think that all of us ought to possess it. They say, firstly, that we have throughout the world accumulated a great deal of experience in adult education. Out of this experience we can now squeeze out principles and generalisations that will help us plan in the future.

This process of squeezing out must go on all the time. Secondly, the time has come when we must extensively borrow from other disciplines and use their techniques, and re-formulate their ideas and findings to our own needs in adult education. I think these are two extremely valuable principles.

The trouble with applying them, as has probably been seen already in this conference, is that there is a great deal of confusion about what is meant by research. For some it is extremely rarified, something done only by universities and for doctoral theses — this is the fear which has put off so many practitioners in the past. They felt that research was concerned with matters far away from their day-to-day interests. There is much research which is mere fact-finding and which may go to a very humble level indeed. I am in favour of an extremely wide definition of research, so that any attempt to conserve and classify knowledge and experience, any attempt to make new discoveries, is regarded as research. So the humblest field worker who is experimenting, who is trying comparative methods, who is making a modest attempt to report and evaluate what he is doing, is doing research.

I think we need to examine more carefully the problem of who is going to do research. I suspect for prestige and institutional reasons, the impetus of most new research should come from the universities. In a country where there is only one university this is splendid; in a country where there is more than one university, it seems to me that we also need some kind of national research centre, which may be associated with a particular university, or may work in isolation. The reason why I think the university should be concerned with research is that I think the research and teaching functions go hand in hand.

One must see that everybody involved at any level in adult education is research-minded. This does not mean that the man in the field must learn social survey or sampling techniques; it does mean that we must persuade people that it is important for them to study what they are doing, and round off what they have done by reporting it. This should be done at all levels. It is astonishing how many long-established extra-mural departments have virtually no records of what they have done, and most have made little attempt to evaluate what they have done and to publish reports. By this I don't mean their annual reports, I mean serious attempts to estimate the social value of what is being accomplished. In the short run what we have got to do is to get people ready for research involved in adult education. I am possibly treading on people's corns when I say that I think that it is wrong for someone to be employed in developing countries full-time as an educator, and not, at this stage, to devote his time to research problems affecting adult education. I should like to think that if I had a staff of 15 or 16 they would all be doing research in adult education rather than in their own subjects.

So much by way of general preliminary. What about the main subject, the areas of research? This may be approached from 3 categories:

Borrowings—the disciplines from which we borrow ideas and techniques;

Experience—built up over many years from our own experience in adult education;

The area of techniques and methods which we can use most effectively in the study of adult educational problems.

Another important classification is to distinguish between operational and experimental research. I suspect that very few people, especially those in Africa, can afford to spend much time in experimental research. Most must go on with their jobs and rely on what the Americans would call "on-going" research. To illustrate—one might like to get controlled groups of students to study in particular subjects, but this is not easy, so one must use existing classes as they are with existing programmes. Sociologists might not be happy to dispense with properly matched control groups, but most people will have to conduct research in conditions as they find them.

I am also convinced that in the short term at least we must go in for essentially applied research; I would not say we must go in for nothing but applied research, but I think we must be concerned with making ourselves more effective. In this sense adult education is a practical discipline like law or medicine or engineering. Our object is to effect change, to get better results, to solve particular problems.

Let us come to the borrowing. I will almost certainly not be able to resist cataloguing a long list of the disciplines from which we borrow, but perhaps we can discuss these fields in detail afterwards. What do we borrow from? We do not just borrow from one discipline and we must think in inter-disciplinary terms. In any project in a developing country we would need to involve a number of disciplines. First of all from philosophy, for the study of our objectives, the definition of adult education and so on. From sociology for the understanding of our social environment, with such factors as social class; I think sociology has most to teach us. Many of the techniques in sociology are particularly relevant to us. Social psychology and social anthropology, the latter particularly important in Africa. Psychology and industrial psychology, especially where labour education is involved. Psycho-linguistics: I can see that studies in this field can be of tremendous value. History, in order to get a sense of perspective and to build up a tradition from a knowledge of the past. Physical education and physiology for the light they throw on the process of ageing, the way in which attitudes and motivation vary at different ages. A great deal of thought has been going on in recent times about public administration, out of which are emerging some useful theories which we ought to be aware of and which we should attempt to apply in adult education.

Let me choose just one of these subjects to show the range which is open to us. I shall choose the obvious subject, psychology. Plainly, the things that hinder or help adult learning are quite different from the things that help or hinder children. Up till now, all our thinking has been dominated by experience with children. We shall have to revise our ideas here about how adults learn, what motivates them, the extent to which what they achieve is influenced by their aptitudes, their previous levels of accomplishment, by the circumstances in which they learn, and so on.

Then there are the areas of research concerned with our experiences as adult educators; as all the methods we use are an obvious area of research, an analysis of what is successful in some methods as against others. Such a comparative analysis is enormously important. We have a lot of experience now in dealing with the problem of adult literacy, and agricultural extension; communications, too, I think is very important to us. In fact, I think adult education is gaining new ground. Some of the most interesting work done on communications in Britain was done by people who were trained in adult education. It is interesting to see how many people have stepped over from the field of English literature to the field of communications. I think particularly of the work of Raymond Williams and Richard Hoggart. Theirs are the most interesting discoveries yet made, I think, on the impact of the mass media. Comparative studies between different countries are enormously valuable, and very little of this has been done, in fact, apart from the book by Peers published in 1957, I can think of no serious attempt yet to write a comparison of adult education. There is much scope here, I would have thought, for people with a lot of experience in Britain, or America, or Denmark, who have then come to Africa. The history of adult education is important too. Some of the better local studies, in which an attempt has been made to write history from the point of view of adult education, have thrown light on other things too. The best example I know of this is a book by Harrison, called "Living and Learning". Incidentally this is an interesting example of what I would mean by really good research. I have found other books on adult education which are mere catalogues drawn from secondary sources, many of them suspect. This book however is absolutely splendid. The author takes a particular problem, from a particular area, and from that he illustrates a whole epoch of social history. This could be done here too, and incidentally, there is a tendency to suppose that in a developing country there is no history of adult education at all. It is not so, though much of what has happened is very recent. Then we have had a lot of experience teaching particular subjects to adults, and we have the resources to collect information about the problems of teaching particular subjects, what are the best methods, what are we really aiming at. There is obviously great scope for this, especially for people who have been teaching a subject overseas and then in Africa, and who could say how different the problems are. Then we have a lot of experience in dealing with students and in what to do and what to learn and how to tackle their learning problems. Out of this something of a theory of counselling might be evolved. Above all, we have had a lot of experience in designing total programmes in adult education; we need to derive from our experience some principles and generalisations, as I suggested.

The third main area is concerned with techniques, the general application of research techniques. Practically all techniques being used in the social science field have some relevance for us. The successful researcher needs an elementary knowledge of statistics, and in an ideal research department he would have at his disposal the services of a full-time statistician. Survey methods plainly are of importance to him, including sampling methods; he would also benefit by an acquaintance with evaluation methods and attainment tests.

I want now to draw to a conclusion by suggesting some questions which we should seek to answer by undertaking research.

Firstly, in any particular social context, we need to ask ourselves what we mean by adult education. Studies of participation are obviously very desirable indeed; once you start to do this, you see the importance of asking, what constitutes adult education? You cannot do participation studies until you are absolutely clear. Do you mean just what universities do? Do you mean only what institutions do who are organised by governing bodies of adult education? I came to the conclusion in Singapore, after putting this question to almost everybody there, that adult education was understood to be what the Adult Education Board does. If you had said to the government researcher, "Please find out for me, how many people participate in adult education," he would have sent for a copy of the annual statistics compiled by the Board. We also need to find out why people do not participate. We need to study in detail students' motivations, and this cannot be isolated into the motive for attending a particular class. We have to discover what motivates people to learn at all in that great complex which makes up their lives, and their interaction with other individuals and society. We need to pay more attention to the content of our work — why do we teach what we do? Why do we teach in that particular way? Why do we devise syllabuses in that particular way? We also need to devise methods for predicting the success of our programmes. We ought also to study, especially in developing countries, what sort of people should be adult educators.

Finally I wish to suggest research priorities in a developing country. One should draw up a sustained plan of research over a number of years. Universities should take the lead in getting all the interested people together and working out a programme that most effectively uses the resources of cash and personnel.

Priorities might be in the following order:

a) Recording and classifying all the material already in existence;
b) A general survey of existing facilities;
c) If no special skills are available, there is no harm in straightforward descriptive studies. If skilled help is available it should be used to prepare a baseline study, a map, of the field;
d) To write up the history of what has gone on, to acquire perspective and develop a tradition. There must be developed a corps of people who see themselves as adult educators, a clerisy;
e) Studies of the relationship of social change and adult education, the effects of migration, urbanisation, industrialisation;
f) Detailed study of the efficacy of different teaching methods;
g) Studies of the organisation and administration of adult education and its effectiveness;
h) Longitudinal studies of the effectiveness of different programmes;
i) Experiments with new methods of teaching — this field is perhaps especially suitable for university researchers.

In conclusion, whereas research is being regarded as important in the developed countries only after adult education has had a long history, in developing countries the universities must play a significant part in the field of research right from the beginning, alongside training and extra-mural work. In crude economic terms, research will be justified.

## DISCUSSION

A warning was given against "instant research" dispensing with the controls incorporated in their research designs by social scientists. It was felt that the evaluation of programmes should be undertaken by people not involved in teaching them. On the other hand, adult educators were in a good position to do descriptive studies.

A general assessment of existing programmes was thought to have high priority. At this period of planning, patterns were being set for years to come. They should not slavishly follow past practice except where this was appropriate.

It was remarked that government servants were in an embarrassing position, in that while they were often alone in having access to material, it was generally impolitic for them to comment on policies which they were administering. A plea was made for closer co-operation between universities and governments.

# Methods of Research

### J. Lowe

I shall try today to offer a practical guide to research. This will come under four main headings: objectives, resources, methods and distribution. First, as to objectives: our research must be practical, it must be directly relevant to the problems that face us in improving our efficiency as practitioners. We must ascertain precisely what information we need to do this, by what method the information can be obtained, and whether we have resources to employ the method, before we are committed to a particular project.

Our resources are of three kinds: personnel, finance, and materials and equipment. I would advocate that the staff of an adult education department be heavily weighted with those who have a social science background. A psychologist, especially an educational psychologist, would be a considerable asset. A statistician is also needed, although one would hope that any man with a Ph. D. would have some familiarity with social investigation and statistical techniques. It is also desirable to stimulate academic colleagues with an interest in adult education. This is mainly a public relations job, but an important one. It shouldn't be assumed that only academic colleagues can help. Governments and businesses often employ highly qualified people such as statisticians who can be asked to help. A great deal of help can be obtained in refining objectives and research tools by inviting the critical comments of other experienced researchers. Resources of personnel can be extended in another direction: students should be encouraged to write some kind of appraisal of the work or course that they are doing. Not only does this benefit the student, but it is an important source of information.

Then there is the question of finance. The provision of books and periodicals is expensive; research workers need travel and subsistence allowances; it may be necessary to employ research assistance; the costs of publication have to be met. One should not despair of getting money for projects. In starting a new department, the whole effort should not go in promoting courses, an attempt should be made to get research written into the budget right from the beginning. I can envisage governments being prepared to put up money for specific projects, if they can be related to some national plan. And all the foundations ought to be pursued.

Finally, there are materials and equipment to be considered. Obviously, as soon as possible a specialist library should be built up, containing the relevant literature and periodicals, and especially reports by such bodies as Unesco. A special effort should be made to collect and catalogue reports originating in one's own country. Another basic source which should be developed is a comprehensive, but accessible, set of records of the student population with which the department deals. It is highly desirable that the form of record-keeping should be standardised with other agencies. It is also desirable to impart a regard for strict accuracy in those responsible for keeping such records. The understandable, if lamentable, desire to publicise inflated figures of class attendance should be discouraged.

Now I turn to the very important topic of methods. There are broadly three kinds of methods: historical, descriptive, and experimental. I think experimental methods have a place, in a longitudinal study, for example, and especially in research into learning habits and the most effective teaching methods. But it is likely that most of our work will be descriptive, with the data obtained by visits, interviews and observation. The classic example of a descriptive study is the Lynds' account of "Middletown". I would also recommend to your attention two studies published under the auspices of the University of Rajasthan, one entitled, "Continuing the Education of the University — a Plan for the University of Rajasthan". Rajathan had the assistance of two Canadians who undertook a community survey which seems to me a model of its kind. Details about how they planned the survey, how they conducted interviews, what inferences they drew from the data, are included in the reports.

A high priority should be accorded to a general survey of the existing facilities, agencies and student populations, as a prerequisite of planned development. How does one go about this? In the first place it is necessary to be very clear about the objectives of the survey, one must even be prepared to abandon the idea of a survey if reflection and critical comment suggests that there might be a better way of achieving the objectives. It is necessary to consult colleagues in the field, not only to obtain their advice but to avoid duplicating work that has or is already being done. Then one must decide on the coverage of the survey; this raises some very difficult problems in a country like Kenya. The difficulties of a nation-wide survey are enormous: the enormous land area, the variety of languages, the lack of administrative records which might form a sampling frame. On the other hand, it is difficult to select a smaller area which is fully representative. There are tremendous contrasts between urban and rural areas, there are contrasts between the different racial groups, and it seems to me, non-Africans exercise a disproportionate influence as decision-makers and opinion-formers. I suspect that what you could do is to survey certain areas in some depth, such as Nairobi or Mombasa; for the rest you would have to rely on more impressionistic methods.

In working out your methodology, you need expert advice, from people skilled in designing questionnaires, and statisticians. You need the help of statisticians at an early stage in planning the research design, to ensure that what you propose is statistically acceptable. Then you need to carry out some sort of pre-test or pilot survey, this is invaluable for showing up faults in your questionnaire wording, or distribution method, or instructions to interviewers.

Now let me say something about sampling. It is enormously expensive to make a mass survey of the whole population, but results of comparable accuracy may be obtained if it is possible to take a random sample of the whole population to be surveyed. The problem in developing countries is likely to be that they lack the census returns and electoral registers that constitute a reliable sampling frame. The point about sampling method is that it frees resources which can be devoted to the reduction of non-sampling errors, such as non-response, which are generally much greater than any sampling errors. A survey can be invalidated by a high rate of non-response, because it has been established that there are significant differences between responders and non-responders. Whether you sample or survey the whole population, it is essential that you incorporate in your research design a method of contacting informants that will give you a high rate of response.

Questionnaire design has a bearing on this problem of response, because people are more likely to respond if they are confident that the confidentiality of the information they give will be respected. You can convey this impression by the manner in which you distribute and collect the questionnaire, and by the wording of questions: it is desirable not to ask for more detailed information than you need, people are much more likely to put their age or salary in a category than to quote the precise figure. It is a great aid to processing of the data if answers can be offered in cafeteria form; open-ended questions tend to produce an unmanageable response. The pilot survey is an important step in ensuring that you offer the right choice of answers. You will find that the shorter the questionnaire, the better the response; also, unless the filling in of the questionnaire is to be supervised, very long questionnaires are not completed well.

There are some important administrative considerations: it is necessary to get a lot of people involved in the administration of a survey, to allay their suspicions and enlist their co-operation. This is time-consuming and laborious, but essential to success; administrators loathe distributing questionnaires and getting them back. The timing of the survey is important, exceptional events such as holidays or harvests should be avoided.

The next stage is processing the completed questionnaires or interview schedules. They should be scanned for omissions and internal inconsistencies, which can often be remedied by internal evidence. Machines can be of enormous help in the processing and analysis of the data, and your statistical adviser should be consulted as to the possibilities. The right time to do this is very early on, the whole research design needs to be planned with the processing and analysis in mind. There may be great possibilities of economies in a pre-coded questionnaire.

Finally there is the writing up of the finished work. There is a standard practice for preparing survey reports; some years ago Unesco published a scheme which you will find as an appendix to a book I strongly recommend, C. A. Moser's "Survey Methods in Social Investigation".

Now the last thing I want to do is to talk about distribution. If we are dealing with applied research, it is important that the work we do and the inferences we draw should reach as wide an audience as possible. I assume arbitrarily that we have three potential audiences, ourselves as professional adult educators, policy-makers in governments and allied bodies, and the general public. The format would presumably depend on which of these audiences you were most concerned with. You should not be put off by not being able to go to a publisher to produce these reports, you can equally well have them mimeographed and distributed to the right people.

In conclusion, I am absolutely convinced from being here that you really must sooner or later introduce a "Journal of African Adult Education", that you must bring out a bibliography of some kind, and that someone must take responsibility for preparing and publishing an index of latest research and publications. These latter tasks might suitably be undertaken in conjunction with the production of a journal.

## DISCUSSION.

In response to a problem raised by Mr. Noak, suggestions were made to overcome the problem of non-response in a study of "drop-outs". These included, an attempt to gain personal interviews, interviewing remaining members of the classes, general investigations of geographical mobility, an investigation of the social time-table for competing activities.

The point was made that research staff seconded from overseas are not always as useful as they might be, because they do not publish their results locally but in inaccessible overseas journals. It was felt that publication rights should be locally based, and this be made a condition of appointment, on the lines of the University of Alaska's stipulation.

It was suggested that when overseas help is offered that instead of using resulting seconded staff for expanding existing programmes, some personnel could be used for research and evaluation purposes.

# Evaluation in Research

### R. Kidd

While it is easy to list factors for the evaluation of research, and to state these in general terms, the expression of these factors is infinitely more difficult and variable. Most of us already know more than we are practising — we do not have to know any more to further research. The opposite attitude is found in the current tendency in the U.S.A. which is to say that one doesn't know enough because there hasn't been research into that specific subject.

There is nothing sacred in research, I believe that all of us have the opportunity to take in the research process. We perform a number of roles, and we do not all have the same opportunities, although we all have some.

What are these opportunities that we have? Some of us can provide budgets for research. Most of us who are administrators are in an excellent position to ask for money, or to make or demand decisions to make money available for research. Some of us are in positions to initiate projects for research, if we are in government departments or institutions. All of us may have some part in stimulating governments to take necessary action. In about twelve countries now, the regular census asks questions revealing data absolutely essential for us, e.g. the number of people who are engaged in some form of educational enterprise. In no case did the census authorities put in such questions by themselves; in every case I know of, they put them there because this is what the educationists pressed for. All of us perhaps can have some interest in encouraging educational and research institutions to pay attention to our fields. In all of this I think we can work with our academic colleagues, psychologists, economists, philosophers etc. We can do this in several ways. For example, it should be possible in any college, to pull together all the social science faculties to talk about their interest in, and information they may have, about adult learning.

It is possible, as I have found, when enquiries are on, to get the researching team to include additional factors. We have in our university a very good group of economists and psychologists making a study of two cities. They had included no questions having to do with learning times or learning activities, but when asked were very willing to include these questions. We will now have the answers to these questions which we can consider against the background of the original general study. In one other case in the same State we have been able to persuade a team to include questions of this kind, but we had to find some additional money for them to do so. Even so, this is still much cheaper than mounting an independent enquiry.

If you add up the list of research projects in the U.S.A. and find out where they originate, you will be amazed to see how many come from the students of one remarkable teacher. Many tutors in extra-mural classes have profitably employed their students in research. For all of us I believe there will be a continual studying of research findings, and the sense therefore of having true knowledge. For some of us there will be research on a professional basis, through work perhaps on diaries that become available and will become history eventually; through recording the processes in which we are engaged etc. Perhaps, most important, is developing our concepts merely through thought and reflection. Unfortunately, our field has many concepts which research cannot examine unless we refine them further. Take a word we often use; we say it is very important to arouse curiosity. What is curiosity? What is the difference between people who are curious and people who are not? I do not know — and I have never found anybody who does. I do not know any systematic development of this concept which may be fundamental or meaningful. It will require some elaboration before it is ever possible to engage in any systematic research on this concept.

I would like to review quickly some of the kinds of research which is going on, simply to suggest what needs to be done. Here is a sample (see Appendix 3) of 200 cases reported over a period of two years in the U.S.A. I have made a rough classification of the kind of enquiries and the numbers of each kind. There were 26 cases involving the examination of a particular agency or institution. Most of them were of the descriptive type, with an attempt at the analysis of the project. In some of them the appraisal was carried out with some thought. There were 14 cases of historical or biographical studies; there were 6 cases — and these are rather important — of exploratory studies which led to the planning of an institution. There were 28 studies of the interests, needs and capacities of students, some of them good, others without much theoretical basis. There were 23 cases of participation and "drop-outs", 17 studies of teaching method, 21 cases involving the evaluation of the effectiveness of a specific programme or project. These were fairly vigorously conceived and carried out. There have been a few studies of administration and policies, mostly descriptive. There are 17 studies of personnel, 8 studies of acceptance or rejection of knowledge. I have noted that not one of these 200 cases has to do with the effect of education on economic development, or with the economic consequences of education. You might be interested to analyse the sample for the other gaps (some of the gaps are created by my choice of categories).

I would like to refer to a few examples of studies which in my personal opinion have influenced considerably the development of adult education, and which we should take further. The first of these is the work in developing the concepts of teaching science, of analysing the differences of approach of certain teachers to see whether certain styles could be more effective in some circumstances than others. Results so far have not been too impressive, but this is a field that could be developed with profit to all of us. A second contribution of importance is the work of Buiner in the field of learning theory. A third major contribution is the concept of continuous learning. We need to ask "What is the difference between a man who continues to learn throughout his life and a man who does not? Are the continuous learners more intelligent? Are they more consistent? Are they more progressive?" A dozen or more projects have been carried out in relation to this notion of continuous learning, including some highly sophisticated longitudinal studies. Although few in number, these studies concur in one finding: that there is nothing to suggest that, on the same tests, people's performance decline as they grow older. They support rather optimistic conclusions about learning capacities of older people.

I shall mention just one more study, undertaken out of wartime necessity, which has much more general implications. During the Second World War, foodstuffs which had been customary in American households became less available, and it was thought desirable to educate housewives in the nutritional values of what foods were available so that dietary standards would be maintained. To further this purpose, an experiment in teaching method was undertaken. One thousand women were divided into two groups, half to be taught as a large group by lectures, films and demonstrations, the other half to be taught in small groups of twelve to fifteen members, with opportunities for group discussion. An attempt was made, by selecting the best available, to standardise the quality of the instructors. At the end of the two month instructional period, all the test subjects were given a test of what had been learned about food values. Marks gained suggested that both groups had learned a great deal, but neither was clearly superior. This rather negative result was disappointing to the sponsors, but six months later a follow-up of the housewives revealed a very different result. This time the test was not of theoretical knowledge, but of what the women were actually doing. The results of this enquiry showed that the women who had been taught in the small groups had changed their eating habits three times as often as the women who had been lectured in the mass. It was found that in the larger groups there was an attitude that this was a university programme. They came, they found it interesting and they went home. Women in the smaller groups early on began to identify themselves with the programme much more, they began to know each other, and to take on more obligations to one another. Identification of the person with the consequences of knowledge increased markedly.

The reliability of this kind of research is fairly high, for the researchers had specific objectives. However, not all research is so successful, but we can learn from mistakes as well. Research workers should be continually examining their own assumptions and testing them on their colleagues.

There is a need to differentiate between our evaluation of courses and programmes, and our evaluation of research. For the first, read Malcolm Knowles' book "Informal Adult Studies", Harry Millar's book "Teaching and Learning in Adult Education" and R. Kidd's "How Adults Learn".

In evaluating research, we must ask whether the enquiry meets the test of objectivity, reliability and validity. Evaluation should be a continuing process, beginning with an evaluation of the objectives of the enquiry and the concepts to be used. It may well be necessary to run a pre-test before the main enquiry, perhaps to discover which is the most suitable method of obtaining the desired data. Questions need to be asked about the extent to which the results may be applied and generalised, what further enquiries are suggested by research, whether the value of the results repays the cost of obtaining them. The evaluation should be done by those who are undertaking the research, by their professional colleagues, and by outside bodies in order that a truly objective assessment may be made, with a proviso in the latter case that the evaluators must understand the project and share the objectives of the research workers. What happens when they do not can best be demonstated by the following report — *Report of work-study engineers on a concert performance after a visit to the Royal Festival Hall,* London.

"For a considerable time the four oboe players had nothing to do. The numbers should be reduced and the work spread more evenly over the whole, thus eliminating the peaks of activity. All the twelve violins were playing identical notes, this seemed unnecessary duplication. The staff of the section should be drastically cut; where a large volume of noise is required it should be obtained from electronic apparatus. Much effort is absorbed in the playing of demi-semi-quavers. This seems to be an unnecessary refinement. It is recommended that all notes should be rounded up to the nearest semi-quavers. If this were done, it would be possible to use trainees and lower grade operators. There seems to be too much repetition of musical passages, and these should be drastically pruned. No useful service is performed by repeating on the horns the passages which have already been handled by the strings. It is estimated that if all of the redundant passages were eliminated, the whole concert time of two hours could be reduced to 20 minutes, and therefore the intermission would not be needed.

"The conductor agreed generally with these recommendations, but expressed the opinion that there might be some falling off in the Box Office receipts. In that unlikely event it should be possible to close sections of the auditorium completely with a consequential saving on overhead expenses, lighting attendants etc. If the worst came to the worst, the whole thing could be abandoned and the public could go to the Albert Hall instead!"

# Group Reports on Research

## Group 1

Beginning its discussions after the first formal lecture on Research it was immediately apparent that all members of the group were aware of the great need to promote and develop investigations in the field of adult education. Areas and problems of research were identified with a speed which was at times bewildering for the rapporteur, but it is hoped that the following summary provides a fair consensus of the group's views.

Departing slightly from the list of themes it was recognised that the first task in establishing a national approach to research is to ensure that those engaged in adult education should know what has already been done, not only in the more narrow field of adult education itself, but in various cognate fields. Therefore the group recommended that the first task is to initiate the preparation of a bibliography of existing material. In implementing this recommendation it was felt:

(a) that the most effective way of compiling such a record is on a national basis;

(b) that university adult education institutes and departments in each country are the most appropriate bodies to undertake this work; and

(c) that the Adult Education Association of East & Central Africa should act as a clearing house for research data (The News Letter might well be used to publish bibliographical material and to keep members informed of current research projects).

In discussing the areas of research it was considered that the work undertaken would be enhanced by emphasising the categories of information which should guide researchers throughout the whole field of adult education.

The main research areas identified by the group were:—

Fundamental Education, Literacy, Further Education, Agricultural Education, Health Education, Vocational and In-service Education.

In each of these fields research should be promoted which enquires into: Methods of Communication, Language teaching with special emphasis upon the teaching of English as a second language, Selection and training of Adult Educators, Motivation of Adult Students, Preparation of Syllabuses and teaching material costs, the special problems of women's education and of the various categories of youths, the history of adult education and problems of Organisation and Methods of organisation.

In addition to these areas of research, it was recognised that there are also important research subjects which are not adequately covered by the above categories and which have a regional as well as a national significance. For example, this would apply to investigations into the psychology of learning and teaching and to the regional evaluation of existing programmes as well as to some historical research.

*Priorities.* In discussing the question of research priorities and of action arising from its findings, the group concluded that in most cases this was a matter for decision within each individual country. Decisions would be influenced by special circumstances, by national plans, resources and the scale and character of existing adult education facilities. However, it was strongly emphasised that in all countries there is a need for an effective national voice of all adult educators, and that the task of determining priorities calls for the existence of National Adult Education Boards and Councils representative of the main agencies operating in the field of Adult Education.

Whilst stressing the fact that in the last resort priorities must be determined at the national level, the Group felt that some guidance can be given by this Association, and without attempting to place research investigations in a precise order of priority it suggested that need for action to promote investigations in the following fields:

1. The preparation of bibliographies and records of research material.

2. The history of adult education, not only as a chronicle of what has been done, but as an evaluation of achievements and failures.
3. The investigation of gaps in coverage of existing arrangements.
4. A comparative study of the efficiency of trained and untrained teachers in existing adult education programmes.
5. The evaluation of present adult education programmes with special reference to cost efficiency.
6. Studies of the psychology of teaching and learning of adults in East and Central Africa.
7. Comparative studies of adult education practices elsewhere with a view to application and adaptation in East and Central Africa.

*How to get Research undertaken, and who should do it?*

1. It was noted that in all the countries concerned there is a lack of basic educational data and it was felt that as a step towards improving the scope of statistical material, pressure might be brought to bear upon governments to include more educational material in their national census returns.

2. In discussing problems of sponsorship and organisation the group agreed that at this stage emphasis should be placed upon the fullest use of existing research institutes, rather than upon the establishment of new ones.

3. At the same time it was felt that where possible, in the work of existing adult education agencies (and this applies particularly to University departments), there ought to be a research component. This might take a variety of forms, of which the inclusion of an element of research work in the departmental budget might be the most practical. Such funds could be used to encourage research by staff members.

4. The Group were agreed that while more research could be done with existing resources, the promotion of a significant advance calls for external assistance both in research staff and finance. Several members of the Group commented upon the growing interest of foundations, overseas governments and universities in providing assistance, and to the improving facilities for arranging secondments. It was felt that where possible the

advantages of securing secondments of persons who have already had experience of working in relevant fields in Africa should be exploited. This would avoid the waste of time involved in adjustment to a new environment. For example, former members of East African university faculties of Education, Social Science and Arts, of whom there is a growing number, especially in Britain and North America, would be most suitable for this purpose, and the facilities of agencies such as the British Overseas Development Ministry are available to arrange secondments and to provide financial aid.

Finally, it was stressed that the full value of research work undertaken requires that its direction and results should be largely controlled by East and Central African Adult Education bodies or research institutes.

## Group 2

*First Meeting* — 14th June, 66 — consisted of a discussion on what research topics should fall within our treatment.

Two levels were recognised.

1. Research which fitted the particular needs of Adult Education i.e. research directly connected with the operations of various Adult Education Agencies.

2. More general research—sociological, educational, economic etc; research in which adult educators might have a greater or lesser degree of interest.

Various Agencies which might or should be involved in Adult Education research were recognised. They were:

a) Agencies actually engaged in doing research. We should expect them to provide frequent reports and evaluation of their work.

b) Universities — obviously.

c) International Agencies.

d) Government Research Councils.

e) Agriculture Colleges and Teacher Training Colleges, and other training/teaching institutions.

*Second Meeting*—16th June. Mr. Buitron of Unesco provided us with a large amount of material on Literacy work from which we culled the following. Reports available:

1. UNESCO E.D. 204, *Paris* 1964. — Final Report of an "International Committee of Experts on Literacy" meeting in Paris, April 1-10. 1964. This report recommends (Page 3) that before countries embark on campaigns for Literacy, "research is needed at the local and material levels to test and measure the impact of literacy and technical training, both long term and short term, on overall development etc."

2. UNESCO AFLIT/Conf/6, 1964. — not for general distribution. This is a paper on "Media, Materials and Strategies in Literacy Education," by S. Spalding, University of Pittsburgh.

3. UNESCO/ED/203. — Final Report of the Regional Conference on the Planning and Organisation of Literacy Programmes in Africa (Ivory Coast — 1964). Recommendation "p" called for the use of, among other things, programmed instruction, allied with radio-T.V., and correspondence education.

Recommendation "t" called for the establishment of "documentation centres, the study of various problems such as languages and methods" etc., and in another section recommended research into "costs" of organising literacy campaigns.

4. UNESCO 13C/PRG/4, 1964. — "World Literacy Programme," a paper on the launching of a campaign to eradicate illiteracy.

5. UNESCO WS/0465. 36 ED. Literacy — A Bibliography 1956-65, (not for general distribution). World Conference of Ministers of Education on the Eradication of Illiteracy, Teheran, 1965 (Photostat copy).

The Committee further considered the contribution of Mr. Gabaake to the problem of research topics for Literacy Workers. He recommended that:

a) A Journal be established to promote research and facilitate the exchange of information.

b) That research should be done on student mobility as an item for research.

c) That correspondence education might be tested for literacy.

d) That means of facilities for literacy tests and follow up should be sought.

e) Literacy teachers needed examining from all points of view — the importance of which is obvious.

Mr. Cunningham suggested a thorough study of literacy in the context of development to see if money devoted to literacy campaigns was well spent. Maybe there are other models for educational development that need exploration. Perhaps there is too large a commitment of literacy campaigns *per se,* and no thought to the results obtained.

Also research should be undertaken which would analyse the literacy campaign manager — what are his skills? Is he the man for the job? In other words, anthropological research into leadership roles and the structures required to be done and what personnel the community should use.

*Women*:

Mrs. Ahmad treated this subject. She asked for research into the situation of women. Firstly, women's traditional lowly role in society, and the three main groups to emerge in modern African society.

a) the highly educated (12 years or more education)
b) the complete illiterates
c) the 'middles' — standards 4—12.

2. Research should be launched to establish goals, select appropriate methods, and establish most effective possible organisational structures. Keeping in mind, especially, historical prospectives. *Also*, at a more academic level, research must be done with motivation, participation, husbands, programmes, attitudes and aptitudes.

And, of course, bibliographies especially related to women's adult educational work would be useful.

Mr. Cunningham — Mass Media. On Mass Media Campaigns he suggested that research would be useful on the role of radio and films in educating illiterate adults.

Miss Bown mentioned work done in Uganda by a Mr. Lloyd of the British Council — the results of which have been printed.

*Political Structures and Adult Education*: It was suggested by Mr. Cunningham that most countries in Africa, politicians and institutions they have created would provide a rewarding field of research.

For instance,
a) the role of the charismatic leader in Ad. Ed.
b) the role of the politician in getting the people to identify with national aspirations.
c) can politicians and the structures they are building be integrated into an Adult Education Programme for a country?

Miss Bown described work in progress on a bibliography of Adult Education Research and stressed the importance of microfilm in filling gaps in University Libraries.

She also stressed the need to keep in touch with work done in allied fields such as economics, sociology, anthropology, etc.

Concerning the history of Adult Education, Miss Bown:

A. Noted importance of examining traditional forms of Adult Education in African Society. Noted importance of differentiating between African societies with:—

(a) An age-set system and initiation into the grade of elders, and those with

(b) a secret society system.

B. Noted the importance of examining the role of Islamic Christianity in introducing new ideas, new facts to Africa.

C. Noted the importance of examining impact of Colonial institutions and their by-products, e.g.

(a) influence of indigenous organisations such as political parties, improving societies, sports clubs, etc.,

(b) those initiated by Colonial governments, e.g. agriculture extension, health education, community development etc.,

(c) looking at post-independence institutions.

D. Noted importance of looking at the activities of persons. Records in archives in Government and Missions. These documents are fairly accessible. e.g.

a. Traditional figures of those who appear to have been immigrators.

b. Various religious leaders, especially West African Muslim leaders.

c. Various Christian missionaries.

d. Employees of governments.

e. Leaders of voluntary bodies.

and then perhaps a look at their students e.g. T. Mboya.

E. Noted importance of examining developing societies carefully, e.g.

1) Adult Education and its interaction with social change.
2) Adult Education and its interaction with economic change.
3) Adult Education and its interaction with political change.
4) Adult Education as an instrument of National Culture.

F. Noted importance of examining trends in philosophical development of Adult Educators in various countries.

The Group noted:

a) the absence of viable research institutions.
b) the absence of materials and libraries.
c) the absence of trained personnel.

We also noted the need for co-ordination of research within a country — probably by a university institution.

Finally, we noted the importance of promoting the use of O.A.U., the E.C.A., and the department in the University of Khartoum, which we call the University Clearing House, which identifies itself with the various works done in Africa. We thought it important to integrate these bodies into Africa's adult education programme.

## Group 3

This group collected a large mass of material which I have tried to reduce to some kind of systematic order. We divide the field into five sections: research into the skills required and the problems of living in modern society; the significance of adult education in society; the evaluation of research findings; training; the financing of adult education.

*Section One.* Adult education has a contribution to make in providing the skills necessary in a modern society, by means of programmes of health education, family planning, child welfare, homecraft and literacy, and in spreading industrial and agricultural skills to ease the transition into a modern cash economy. This contribution should be more closely examined. There is also a need for research into some problems of our changing societies, such as road safety and alcoholism, with a view to assessing the contribution adult education could make in curtailing them. Of the basic skills, literacy occupies a central place, and we devoted considerable attention to areas in which research could profitably be done. These included: whether education by the spoken word should precede literacy work; the relationship between teaching techniques and the capabilities of the teachers available; the motivations of teachers and students; the choice of methods; the language in which literacy should be achieved; the provision of follow-up material; the level which candidates for literacy certificates should attain; the best ages for literacy teachers and students; the content of the material in which literacy is gained against the background of other parts of student's lives; and perhaps equally important as literacy, the question of numeracy. We also felt that formal vocational training needed examination, and particularly whether present courses and techniques are appropriate to the needs of students and employers.

*Section Two.* Here we are concerned with the economic and sociological significance of adult education. Is expenditure on adult education regarded as an investment? What are the contributions which adult education can make to development in rural and urban sectors of the economy? To what extent does economic development create a demand for education? What are the criteria for establishing priorities in social and economic terms?

We think objectives in the social field need examining: should we be educating individuals, or communities? Can we educate people to co-operate in local development? What problems are raised by the attempt to educate women, or the nomadic peoples? What are the effects on society of removing some of its most able members for further education?

*Section Three.* We think that a system of continuous evaluation should be built into every programme. We suggest that one important criterion by which programmes may be evaluated is whether they educate people to fit into their communities, or educate them and take them out of their communities. There is a need for extended follow-up studies of former students.

*Section Four.* We would like to see comparative studies made of the teaching methods at present being used in such fields as community development, agricultural and veterinary extension, labour and industrial relations, examining the problems of teachers and students and communication between them. We also think the training of adult educators should be investigated.

*Section Five.* There should be a survey of organisations willing to provide staff for adult education, this should enquire into their terms of reference, and similar enquiry could be made into bodies willing to give funds for adult education. A fascinating, and potentially very useful study, might be made into successful and unsuccessful applications for funds and staff!

We offer a short list of priorities, not necessarily in order of priority:

1. A review of the existing resources available to adult education, and the use being made of them.
2. A study of the organisation and administration of adult education at the local and national levels.

3. Research into teaching methods and objectives, with special reference to the mass media.

We also essayed a declaration of principles:

1. Research can no longer wait until we are less busy with the day-to-day provision of education, it must be regarded as part of the normal activities of staff in adult education departments.
2. Other agencies such as government and voluntary bodies should be encouraged to do research into their functions.
3. Adult education departments of universities must mobilise the resources of other departments and outside agencies for assistance in research.
4. In order to secure a sound development of adult education programmes, it is important to ensure that all other educational schemes and activities are carefully reported and evaluated to provide guidance for future programmes. Such careful reporting will also provide materials for wider research projects.
5. It is important that all research findings be published, whether in monograph form, occasional papers, or journals.

# Conference Resolutions On Research

1. THAT RESEARCH MUST BE GIVEN MORE OBJECTIVE PROMINENCE IN THE PLANNING OF ADULT EDUCATION SINCE ONLY IN THIS WAY COULD PROPER PLANNING AND CO-ORDINATION BE ACHIEVED AND CORRECT EVALUATION BE MADE.

2. THAT IMMEDIATE STEPS SHOULD BE TAKEN BY PARTICIPANTS TO INSTIGATE RESEARCH PROJECTS. A BASIC BEGINNING SHOULD INCLUDE THE PROVISION OF A BIBLIOGRAPHY OF RELEVANT ADULT EDUCATION ARTICLES OF RESEARCH WORK, THE HISTORY OF LOCAL ADULT EDUCATION DEVELOPMENT WITH SUITABLE EVALUATION, AND DESCRIPTION OF ORGANISATION TO HIGHLIGHT GAPS IN PROVISION.

3. THAT PRESSURE MIGHT BE BROUGHT ON GOVERNMENTS TO INCLUDE MORE ADULT EDUCATIONAL MATERIAL IN THEIR NATIONAL CENSUS RETURNS.

4. THAT EMPHASIS SHOULD BE PLACED UPON THE FULLEST USE OF EXISTING RESEARCH INSTITUTES RATHER THAN ON THE ESTABLISHMENT OF NEW ONES.

5. THAT EXTERNAL ASSISTANCE SHOULD BE CALLED FOR FROM SUCH INSTITUTIONS AS UNESCO, M.O.D., OVERSEAS UNIVERSITIES FOR STAFF AND FINANCE TO HELP IN THE RESEARCH FIELD, AND THAT WHERE POSSIBLE, THE ADVANTAGES OF SECURING SECONDMENTS OF SUITABLE PERSONS WHO HAVE ALREADY HAD EXPERIENCE OF WORKING IN RELEVANT FIELDS IN AFRICA, SHOULD BE EXPLOITED.

# Part 3: Appendices

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# Conference Schedule

**Research Study Group should organise themselves each evening after supper.**

***Monday* 8.30 — 10.00**
**Introduction — P. Thornhill.**
**Members work through short programme.**
***Fundamental Features of Programme Learning* — D. Unwin.**
**10.30 — 12.30**
**10.30 *Practical Uses of Programme Learning* — C. G. Monk.**
**11.30 *Preparing a Programme* (1) P. Thornhill.**
**2 — 5 p.m. Reports from Participants.**

***Tuesday* 8.30 — 10.00**
**8.30 *Methods of Presentation, including Teaching Machines* — C. G. Monk.**
**9.00 *Preparing a Programme* (2) — P. Thornhill.**
**10.30 — 12.30**
***Workshop*: Preparing Objectives, introduced by D. Unwin.**
**5 — 7 p.m. *The Role of Research in Adult Education and Public Policy* — Dr. R. Kidd.**

***Wednesday* 8.30 — 10.00**
***Workshop*: Programme Writing, introduced by P. Thornhill.**
**10.30 — 12.30**
**10.30 *Workshop***
**12.00 *Discussion*: Organization of Programme Writing, introduced by C. G. Monk.**
**2.00 — 4.00 p.m. The Main Areas of Research — Dr. J. Lowe.**
**4.30 Visits.**

***Thursday* 8.30 — 12.00 *Workshop***
**12.00 Exchange of programmes for comment and discussion.**
**2 — 4 p.m. Methods of Research in Adult Education — Dr. J. Lowe.**
**5 — 7 p.m. Working Groups on Research.**

***Friday* 8.30 — 10.30**
**8.30 Research Findings — D. Unwin.**
**9 — 10 Development Testing and Economics — C. G. Monk.**
**10.30 Discussion on Programme and Correspondence Education, led by Dr. Edstrom.**
**11.15 Review of Programmes and a Discussion on the Place of Programming in Adult Education in East and Central Africa.**

*Saturday*

**1.30 — 10.00 Evaluation in Research — Dr. R. Kidd.**
**10.30 — 12.30 Reports and Final Session on Research.**
**12.45 FINAL OFFICIAL LUNCH.**
**2 — 4 AGM Adult Education Association.**

*Sunday*

**Departure after Breakfast.**

# 200 Research Activities in U.S.

## 1960-1961

1. General Studies about the "role" or "status" of adult education in a particular country or geographical area or in a particular field of work.
   Example *The role of provincial governments in the Atlantic Provinces of Canada in adult education.*
   20 cases

2. Description, analysis and appraisal of the work of particular agencies or institutions.
   Example *An evaluation of academic education in the California Department of Corrections.*
   26 cases

3. Historical and biographical studies.
   Example *The development of publically supported adult education in South Carolina;* 1910—1960.
   14 cases

4. "Exploratory studies" leading to planning a programme or an institution.
   Example *Determining management training needs in Pennsylvania.*
   6 cases

5. Studies concerning the interests, needs and capacities of adult students.
   Example *The guidance needs of the adult extension students of the University of Oklohoma.*
   28 cases

6. Studies of participation and "drop-outs". (Adult students).
   Example *A baseline study of adult participation in educational activities in Nebraska.*
   23 cases

7. The use of media and methods of instruction: comparison and appraisal.
   Example *A comparison of the effectiveness of the lecture bulletin,*

*film, and television in presenting research findings in agriculture.*
17 cases

8. Evaluation of the effectiveness of specific programmes or projects.
Example *A study of the effects on education of the community development project in the State of Oregon.*
21 cases

9. Studies of the organization and administration of adult education.
Example *A study of the policies, practices and responsibilities in supervision and administration of an adult school in Los Angeles.*
5 cases

10. Studies of personnel in adult education.
Example *Attitudes of teachers who teach both adult and regular classes.*
17 cases

11. Studies of acceptance and rejection of new knowledge or new practices.
Example *A demonstration project in the prevention of "urban blight" and slums in Washington, D.C.*
8 cases

12 Studies of the impact or effect of adult education activities on the community or society.
Example *Education and the integration of immigrants in Canada following the Second World War.*
7 cases

13. Miscellaneous.
Example *Contributions of the armed services to the development of knowledge about educating adults.*
8 cases

*Note gaps* Economic studies.
Other

# Short Bibliography on Research Methods

1. Selltiz, C., Jahoda, M., Dentsel M., and Cook, S., *Research Methods in Social Relations*. 1964, Holt, Rinehart and Wilson, New York.

2. Goode, W. J. and Hatt, P. K., *Methods in Social Research*, New York, McGraw — Hill, 1952.
   The above are both standard texts covering whole fields, with adequate emphasis on problems of research design.

3. Madge, J. *The Tools of Social Science* London, Longmans Green. 1953.
   This is a similar treatment to those above, but with a greater emphasis on the philosophy of social research.

4. Morer, C. A., *Survey Methods in Social Investigation*. London, Heinemann, 1958.
   Deals only with survey methods. Is strong on sampling techniques. Each of these works contains an extensive bibliography of the specialist literature, a minute fraction of which is given below. The title is usually an adequate indication of the content.

5. Abrams, M. *Social Surveys and Social Action* London, Heinemann, 1951.

6. Cantril, H. *Gauging Public Opinion*. Princeton, Princeton University Press, 1944.

7. Festinger L., and Katz, D. *Research Methods in the behavioural sciences*, London, Staples Press, 1954.

8. Hyman. H. H. *Survey Design and analysis: principles, cases and procedures*. Glencoe, Free Press. 1955.

9. Hyman, H. H. *et al. Interviewing in Social Research* Chicago, University of Chicago Press. 1954.

10. Payne, S. L. *The art of asking questions*. Princeton, Princeton University Press, 1951.

11. Ackoff, R. L. *The design of social research* Chicago. University of Chicago Press, 1953.

12. Fisler. R. A. *The design of experiments*. London, Oliver and Boyd, 1951.

    Dealing more specifically with research in adult education is:—

13. Gage, N. L. (Ed.) *Handbook of Research on Teaching*. Chicago.

# Minutes of the Conference

Present:
Roy Prosser — Chairman (Kenya)
Evan Richards — Secretary (Kenya)
Miss Lalage Bown — Sudan
Mrs. Suad Ahmed — Zambia
David Crowley — Tanzania
Russell Parkes — Kenya
Hans Noak — Zambia
Hyadon Roberts — Canada/Rhodesia
Cyril Barwell — F.A.O. Kenya
Dr. Visho Sharma — Kenya
Dr. J. Robey Kidd — Canada/India
Cyril Monk — U.K.
Josephat Karuri — Kenya
A. Tidder — Zambia
P. Bertelson — Tanzania
J. Zulu — Zambia
Solomon Inquai — Ethiopia
Jeremiah Gabaake — Bechuanaland
C. Oliphant — Bechuanaland
Lars Edstuom — Sweden
Grif. Cunningham — Tanzania
Robin Minney — Kenya
Paul Fordham — Kenya
Alan Slee — Uganda
James Simelane — Swaziland
A. Hlatswayo — Swaziland
Nelson Mamba — Swaziland
Dr. John Lowe — Scotland.

1. *Minutes of the last meeting.*

**RESOLVED:**

That the minutes of the 1st Meeting held on 7 January, 1965 at Lusaka be confirmed and signed.

2. *Matters arising from the previous minutes.*
*Constitution:*

**RESOLVED:**

That Minute 4 of the previous meeting be brought to the attention of the new Committee and that a formal constitution should be drawn up by the incoming Committee and circulated to members at least three months before the 1967 Conference, the constitution to be as simple and flexible as possible. Mr. Paul Bertelsen should be the convener of the Constitutional Committee.

3. *Chairman's Report.*
See Appendix A.

4. *Subscriptions.*
i) *Individual Membership:*

**RESOLVED:**

That the individual membership fee be increased from Shs. 5/- per year to Shs. 10/- per year.
ii) *Institutional Membership:*

**RESOLVED:**

That the institutional membership fee be increased from Shs. 10/- to Shs. 100/- per year.

5. *Newsletter.*
i) *Editor:*

**RESOLVED:**

That Mr. Hans Noak of Lusaka, Zambia, be Editor of the Newsletter.
(Noted that the Extra Mural Dept. of the University of Zambia would help in the production of the publication).
ii) *Journal:*

**RESOLVED:**

That the Newsletter be retitled "AFRICAN ADULT EDUCATION, THE JOURNAL OF THE ADULT EDUCATION ASSOCIATION OF EAST AND CENTRAL AFRICA." and that it should be produced as a Journal.

iii) *Issues of Journal:*

**RESOLVED:**

That the Journal should be produced at least twice a year.
(Noted that Mr. Noak required the support of members and others in the acquisition of articles and items of news for publication. It was also noted that the East African Publishing House be approached to help in production.)

**RESOLVED:**
That the question of producing a Newsletter as well as a Journal should be discussed at the next Annual General Meeting. (Noted: Grateful thanks of the meeting were extended to the Institute of Adult Education in Salisbury for its work in preparing the Newsletter for the past two years.)

6. *1967 Conference.*
**REPORTED:** Dr. Alan Slee would arrange this to be held in Kampala around the middle of 1967. Dr. Slee would choose the subject matter of the Conference bearing in mind the following topics suggested by the meeting:

i) The Teaching of English as a second language to adults.
ii) The Relationship of Adult Literacy to other forms of adult education.
iii) The Study of effectiveness of existing adult education programmes.

(Noted that papers for circulation should be sent well in advance and that a session should be held at the beginning of the Conference to report on national progress in fields covered by 1966 Workshop.)

7. *Corresponding Secretaries.*

**RESOLVED:**
That the following should act as national Corresponding Secretaries for the coming year:

Bechuanaland — C. Oliphant
Swaziland — P. Dixon
Kenya — P. Fordham
Uganda — Dr. A. Slee
Tanzania — P. Bertelsen
Zambia — H. Noak
Rhodesia — H. Roberts
Ethiopia — Dr. S. Inquai
Sudan — Mrs. Suad Ahmed.

8. *1968 Conference.*

**RESOLVED:**
That, as Mrs. S. Ahmed offered to arrange for the 1968 Conference to be held at Khartoum, her offer be accepted with grateful thanks.
(*NOTED*: that Dr. Inquai offered Addis Ababa as the next venue but withdrew to allow Mrs. Ahmed's offer to stand. The meeting extended its thanks to Dr. Inquai).

9. *Association Officers 1966-7.*
i) *Chairman*:
**RESOLVED:**
That Dr. Alan Slee be elected Chairman for the coming year.

ii) *Treasurer*:

**RESOLVED**:

That Mr. A. Tidder be elected Treasurer for the coming year.

The meeting closed at 4.15 p.m. after the sincere thanks of the meeting had been extended to the outgoing Chairman, Roy Prosser, for his work during the past year.

CHAIRMAN,
ADULT EDUCATION OF EAST
AND CENTRAL AFRICA

# Chairman's Report

Members of the Association, Ladies and Gentlemen, I am very pleased to be able to report to you the completion of a successful first year (or rather some fifteen months) of the Association's activities. The objectives of our Association which we drew up when we formed it at our Conference last year at Lusaka have been realised for this year. These objectives, if I might remind you, were two-fold: firstly, to organise a meeting of Adult Educators of East and Central Africa, and secondly, to produce a newsletter at least twice a year which should be circulated to members and other interested people.

Since many of those present here now are not members of the Association and were not present at the last Conference at which the Association was formed, I am sure that a review of these circumstances would not come amiss.

The first General Conference of Adult Educators was called by Kivukoni College in Dar es Salaam, Tanzania, in January 1964 to discuss the subject of Residential Adult Education. Present were representatives, both University staff and Civil Servants, from Tanzania, Kenya, Rhodesia and Zambia.

It was decided then, that as the Conference had proved so useful, not only for its material content but also the informal exchange of ideas and informal contacts which were made, a regular meeting should be arranged which should take place, as near as possible, annually. It was also agreed that a newsletter would be valuable in maintaining contact between members and keep us abreast of interesting adult education developments in countries other than our own.

Mr. Hans Noak of the Evelyn Hone College of Further Education in Lusaka, Zambia, agreed to be responsible for organising the next meeting. It was agreed that the Institute of Adult Education in Salisbury should be responsible for the newsletter.

A successful Conference was held at Lusaka in January 1965 — last year — on the theme of "The use of Mass Media in the Education of the Adult". Representatives again of Government Ministries and University Adult Education Departments came together; but this time, from a wider field, for besides the original countries, representatives from the High Commission Territories of South Africa, Uganda and Malawi were included. This might be a good moment to say how pleased we all are that our national scope has been widened again this year, by having with us representatives from the Sudan and Ethiopia.

Due to the financial difficulties encountered in the organisation of this meeting and the unwillingness of Trusts and similar agencies to give money to a private individual to meet the costs of running the meeting — many being contacted unsuccessfully — it appeared at times that this annual project might have had to be abandoned. In the event, the Anglo-American Corporation and the Roan Selection Trust — Copper Mining Companies — offered financial support to make the Conference possible.

It was felt strongly at the Lusaka meeting that to facilitate the financing of future meetings, and also to give cohesion to all adult education work in East and Central Africa, the formation of an association would give body and continuity to such activities.

A collection of procedural rules for the association was drawn up in the form of the Minutes of the General Meeting and the Association was brought into being by resolution.

It was decided that there should be corresponding secretaries, one for each country represented, and that the Chairman of the Association should be he or she who has responsibility for organising the next annual Meeting of the Association. In order to make for easy administration, it was agreed that the Chairman should appoint his own Secretary/Treasurer.

It was agreed that the next Conference should be in Nairobi and that the responsibility for the newsletter remain with the Institute of Adult Education in the University College, Salisbury.

There is no doubt that the formation of the Association helped a great deal in making the financing of this Conference possible, but even so, in spite of contact with every possible Trust and Agency, I had to postpone the arrangements from January to this month for lack of funds. In the event, due to personal contact that I had with the Thomson Foundation, I was able to get £800 to meet the cost of visiting specialists, approximately £900 from Unesco for the fares of government delegates, and £300 from the East African Institute of Social and Cultural Affairs, for Administrative costs, the publication of these proceedings and report writing. All these monies were tied to the purposes which I have mentioned and any balances unspent must be returned to the originating body. Hence there can be no unspent balance to carry forward to next year. I am sure that we are very grateful to all these agencies, and to Shell International Ltd., who paid the expenses of a visiting Specialist in Programmed Learning. I was also able to take advantage of a British Council sponsored visit of Dr. John Lowe to East Africa, to help build up the Research content of our Workshop/Conference.

I would like to make it clear that the financing of an Annual meeting of this type is not easy, though clearly not impossible. There can be no doubt that the decision to form the Association was a correct one and that its existence made our meeting possible.

Our Association is a very loose one; our objectives are specific: our constitution is very flexible; and, our organisation is very simple. I am sure that for the time being, the way we have begun is the way we must continue. Distances are still great in Africa, the postal services are not as good as they might be and we are all human — whilst we are here, no doubt we all have a sense of urgency and the affairs of the Association — future conferences, items for newsletters, contacts between Corresponding Secretaries — have a high priority. When we leave here, it is likely that our sense of urgency will diminish, I know that there has been difficulty in getting items for the newsletter in the past. I have had great difficulty in getting replies whilst arranging this conference. This will continue, I am sure, though I hope that all of us here will give maximum support to the next Chairman and to future issues of the newsletter. I say these things not in any sense of criticism but as a warning against setting objectives which are too high, or creating an Association which is too formalised.

Having said this, there are two new items which the meeting will have to consider carefully. The first is the question of subscriptions. It is clear that future conferences cannot in any way be financed from subcriptions. It is clear that small sums of money are required for general administration but that the bulk of any income must go towards the cost of the newsletter. Our present subscription 5/- for individual members and 20/- for institutional membership is very small. I believe this meeting should consider raising the institutional membership fee in order to provide more money for the newsletter especially if the newsletter moves from a University, which often has the advantage of being able to provide funds from its own resources to meet these costs. Here I would like to take the opportunity of thanking most sincerely, the Institute of Adult Education in Salisbury, which until now has borne the whole cost of production and distribution of the newsletter.

This brings me to the second item which we must discuss today and that is the location and nature of the newsletter.

For reasons obvious to us all it would appear that the newsletter can no longer be produced in Salisbury and we must choose a new venue. I understand that our colleagues from Zambia would be willing to undertake this work and I am sure we are grateful for their offer.

On the nature of the newsletter, whilst appreciating the effort that has gone into the production of past issues I am sure we would all like to see something more substantial and — dare I say it — more academic. I am sure that one day we would all be pleased to see something like a Journal of African Adult Education produced, and by building a more substantial newsletter, I am sure that we would be taking a step towards this objective. To do this, we must all be prepared to write and submit articles and I hope we will all resolve to do this.

Finally, I would like to say how in spite of all the difficulties I have thoroughly enjoyed the challenge of organising this workshop and how much I have appreciated the honour of being the first Chairman of our Association and I would like to thank Mr. Richards who has acted as Secretary to the Association and given me unfailing support. Finally, I would like to say that we have had a most useful conference, our newsletters have been produced and our Association has become known to many agencies throughout the world — especially to those which have money which can help us! As time goes on it should become increasingly easy to find funds as the value of our organisation and work becomes even more widely known and recognised and I wish our new Chairman good fortune in his search and in the extention of the Association's activities.

A final remark which I must make is to thank the staff of my Department — Academic and Secretarial — who have helped me so much over the past few weeks.

Roy Prosser
Chairman A.E.A.E.C.A.
1965-6.

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CONTINUING EDUCATION

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